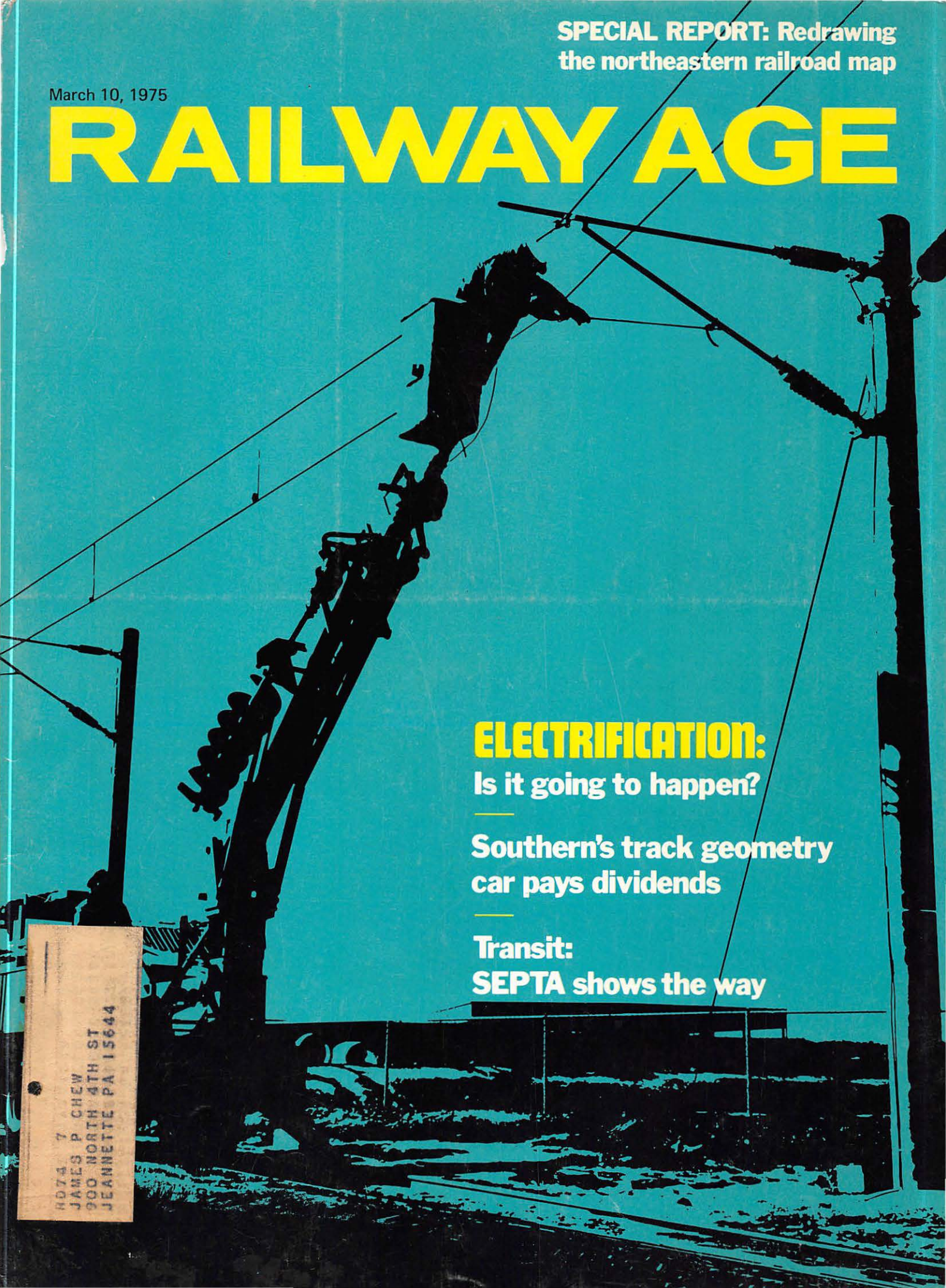
SPECIAL REPORT: Redrawing the northeastern railroad map

March 10, 1975

RAILWAY AGE



ELECTRIFICATION: Is it going to happen?

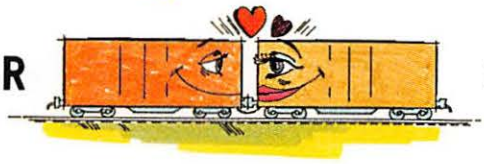
Southern's track geometry car pays dividends

Transit: SEPTA shows the way

RD74 7
JAMES P CHEW
900 NORTH 4TH ST
JEANNETTE PA 15644

A FREIGHT CAR HAS TWO 2 VITAL POINTS OF CONTACT

WITH THE REST OF THE WORLD, THE TRACKS AND

OTHER  CARS.

THESE POINTS OF CONTACT ARE MADE BY THE TRUCKS

AND THE COUPLERS.

ASF HAS TWO 2 NEW PRODUCTS DESIGNED TO

IMPROVE THE FUNCTION OF BOTH TRUCK & COUPLER!

THE ASF® RIDE CONTROL® SIDE BEARING

The ASF Ride Control Side Bearing is made to permit a wider range of operating speeds before swiveling occurs and to reduce the damaging lateral shock frequency of a light car. It accomplishes this by providing constant contact and frictional resistance, horizontally, between the car body and the truck. This bearing is excellent for new or retrofit trucks.

THE ASF® RS5-HT KNUCKLE

The RS5-HT Knuckle is made to improve train handling by reducing slack. It is interchangeable with existing equipment and meets all AAR vertical and horizontal angling requirements. Reduced slack means reduced wear and reduced dynamic force. It will lessen damage to cars and couplers. The RS5-HT Knuckle is available at the same cost as the AAR Std. E-50 Knuckle.

WE BELIEVE IN THE AMERICAN *RAIL* WAY

For further details, please write

ASF **American Steel Foundries**

ONE OF THE Amsted INDUSTRIES

1005 PRUDENTIAL PLAZA / CHICAGO, ILLINOIS 60601

Circle 11 on Reader Service Card

NEED INFORMATION THAT CAN BE PUT TO WORK FOR YOU AND YOUR STAFF?

That's what you will find in the pages of **RAILWAY AGE** every month. Whether your departmental interests are executive, financial, legal, operating, traffic, marketing, sales, purchases & materials, mechanical, electrical, engineering, signaling, or communications, you will find reading **RAILWAY AGE** helpful.

——Use this card to subscribe for yourself or an associate.

——If you order 2 or more subscriptions (please list the names, company, titles, addresses and job responsibility information on a separate sheet) the money-saving two year rate is only $12.00.

One good idea from **RAILWAY AGE** will repay the small cost many times over!

ENCLOSE CHECK WITH ORDER AND GET EXTRA ISSUE AT NO ADDED COST.

OK

Enter my personal subscription to RAILWAY AGE

(Published twice each Month)

☐ $12 2 YEARS ☐ PAYMENT ENCLOSED

☐ $8 1 YEAR ☐ BILL ME LATER

☐ If you are renewing your present subscription check here and attach your address label.

Name _____

Please print or typewrite

Address ☐ Business ☐ Home _____

City, State, ZIP _____

Railroad or firm _____

Department _____

Job or title _____

You also need one of these specialized monthlies:

	1 yr.	2 yrs.
☐ RAILWAY LOCOMOTIVES & CARS	☐ $4	☐ $6
☐ RAILWAY TRACK & STRUCTURES	☐ $4	☐ $6
☐ RAILWAY SYSTEM CONTROLS	☐ $4	☐ $6

Above rates apply only to railroad and industrial traffic men in U.S. and possessions, Canada and Mexico. All others 1 yr. $17.

WHO SAYS GOOD IDEAS ARE SCARCE?

Obviously, someone who has never seen a copy of **RAILWAY AGE.** Just count those in this issue. Wouldn't it help your staff, department officers and assistants to read it; and wouldn't they appreciate having their own copies to read at home?

———Use this card to subscribe for yourself or an associate.

———If you order 2 or more subscriptions (please list the names, company, titles, addresses and job responsibility information on a separate sheet) the money-saving two year rate is only $12.00.

Remember—just **one** good idea from **RAILWAY AGE** could pay for reading it the rest of your life!

ENCLOSE CHECK WITH ORDER AND GET EXTRA ISSUE AT NO ADDED COST.

BUSINESS REPLY MAIL

NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

FIRST CLASS
PERMIT NO. 153
NEW YORK, N.Y.

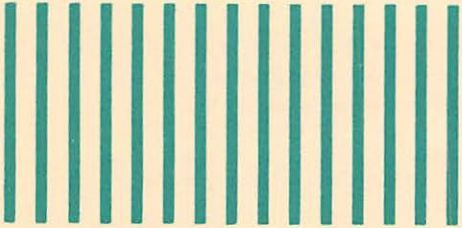
POSTAGE WILL BE PAID BY:

SUBSCRIPTION SERVICE DEPARTMENT

SIMMONS-BOARDMAN PUBLISHING CORPORATION

BOX 530

BRISTOL, CONN. 06010



The slick lube job.

Nobody can give you a better lube job for the money. That's slick.

It starts with the engineering knowhow that enables our rail and flange lubricators to precisely meter the lubricant flow. To give rail and wheel flanges a continuous ribbon of lubricant to extend their life. And to prevent waste of expensive lubricant.

Installation is easy. Our lubricators clamp on the rail. No special rail is required. No drilling is necessary. And our universal joint shaft provides a higher degree of adjustability to meet modern track conditions.

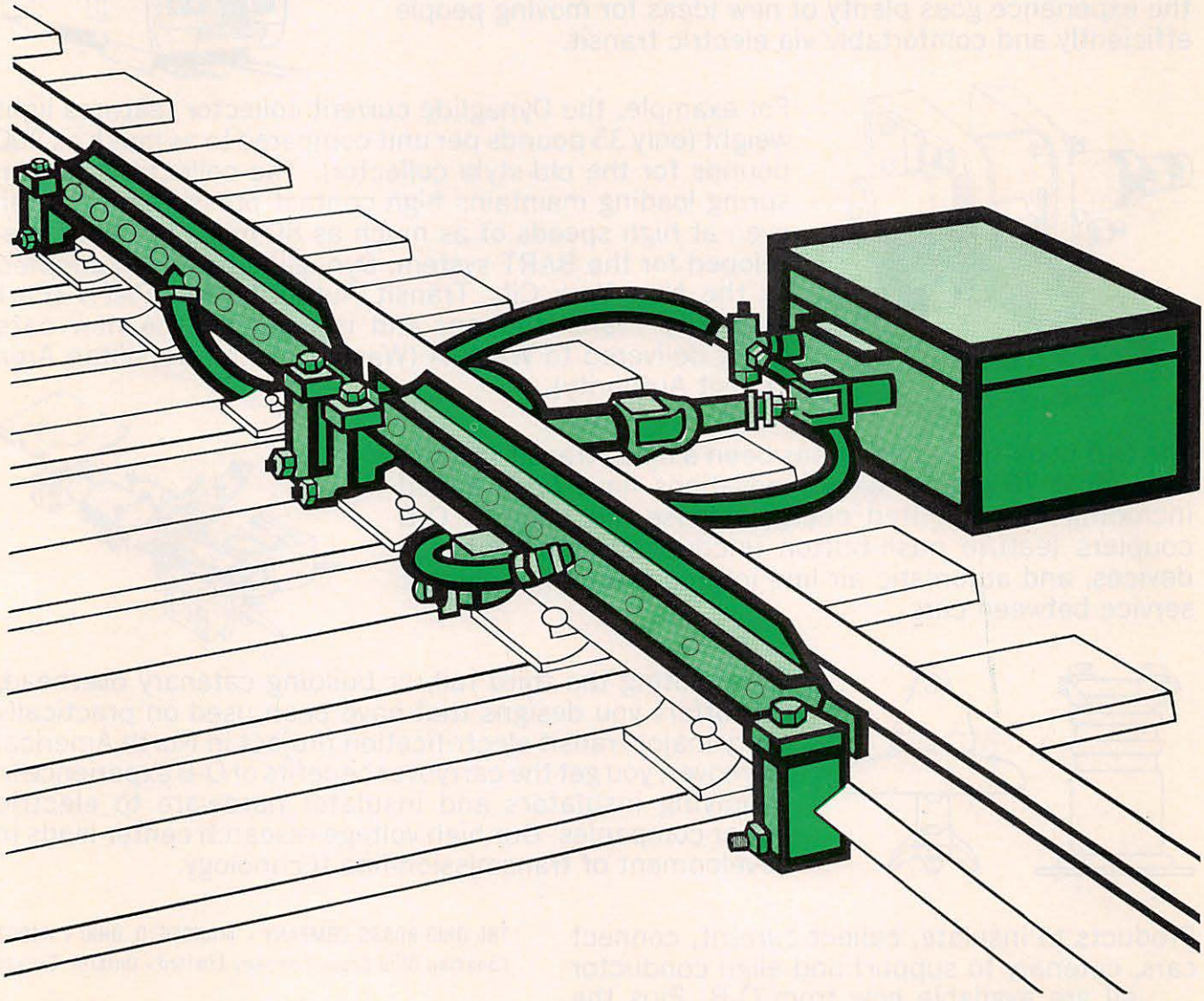
There's less to go wrong with our rail and flange lubricators. That's slick. Because, once installed, they seldom need adjustment. Downtime is minimized. Manhours are saved.

We make lubricators to match every need. To increase rail flange and switch point life up to 10 times.

When you add that all up, it's easy to understand why 80% of all rail and flange lubricators in use today are made by us.

Ask for the full "Slick Lube Job" story from your Portec man. Or write for our free brochure.

RAILWAY PRODUCTS DIVISION
The better product producing people.



MEMBER RPI RAILWAY PROGRESS INSTITUTE

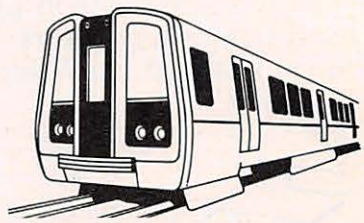
PORTEC inc.
300 Windsor Drive • Oak Brook, Illinois 60521
(312) 325-6300 • TWX No. 910-651-0212

Circle 3 on Reader Service Card

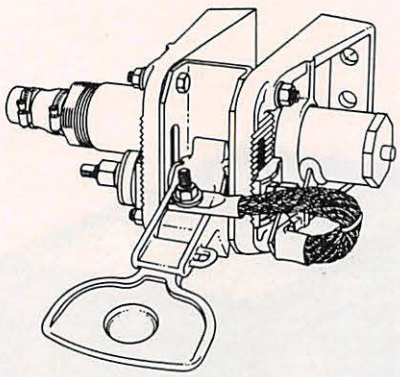
IN MASS TRANSIT

Turn to OHIO BRASS for ...

COLLECTION
...CONNECTION
...INSULATION
...WIRE SUPPORT
...and GOOD ADVICE

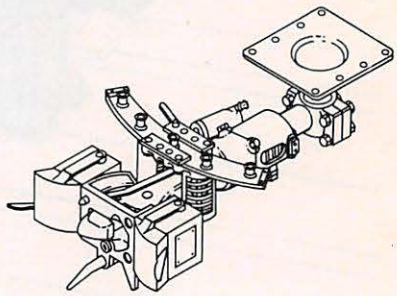


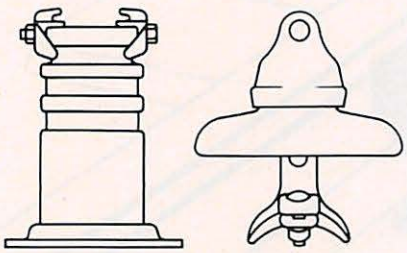
Waiting for you at Ohio Brass is 80 years of experience in planning and building electric mass transit systems. With the experience goes plenty of new ideas for moving people efficiently and comfortably via electric transit.



For example, the Dynaglide current collector features light weight (only 35 pounds per unit compared to as much as 200 pounds for the old-style collector). The collector's torsion spring loading maintains high contact pressure on the rail even at high speeds of as much as 80 miles per hour. Developed for the BART system, Dynaglide has been adopted by the New York City Transit Authority and PATH (Port Authority Trans-Hudson) and is used on the new cars being delivered to WMATA (Washington Metropolitan Area Transit Authority).

The O-B hook-type coupler has been a mass-transit favorite for almost 70 years. Many innovations have been added including the patented energy release mechanism. O-B couplers feature push-button uncoupling, self-centering devices, and automatic air line interconnection of electric service between cars.





In insulating the third rail, or building catenary overhead, O-B offers you designs that have been used on practically every major transit electrification project in North America. Moreover, you get the carryover benefits of O-B experience in supplying insulators and insulator hardware to electric power companies. Our high voltage research center leads in development of transmission-line technology.

Products to insulate, collect current, connect cars, catenary to support and align conductor . . . all are available now from O-B. Plus the experience and talent to use them for maximum effectiveness on your system. When you're ready to talk about mass-transit construction or modernization, be sure you talk to O-B. T-621

Circle 4 on Reader Service Card

THE OHIO BRASS COMPANY • MANSFIELD, OHIO • 44902
Canadian Ohio Brass Company Limited • Ontario, Canada

OHIO BRASS

RAILWAY AGE
Incorporating Railway Locomotives and Cars
March 10, 1975 • Vol. 176 No. 5

Editorial and Executive Offices
New York, N.Y. 10013, 350 Broadway
(212) 966-7700
ROBERT G. LEWIS: Publisher
LUTHER S. MILLER: Editor
FRED C. MILES: Executive Editor
Mechanical: Kenneth G. Ellsworth
Signaling & Communications:
Al Klinger
Art Director: Maurice H. Mates
Editorial Assistants:
June Meyer Mattie Garretson
Production Manager: Ruby M. Yee
Manager—Contract Department:
Cathy Whittaker
Editorial Consultant: George Dusenbury

Editorial and Executive Offices
Chicago, Ill. 60602, 29 E. Madison St.
(312) 641-5815

REID KENEDY: Vice President-Sales
GUS WELTY: Senior Editor

Engineering:
Merwin H . Dick R.E. Dove

Editorial Assistant: Wanda Brown

Washington, D.C. 20045
National Press Bldg. (202) 347-1155
Washington Editor: Richard M.M. McConnell

Falmouth, Cornwall, TR11 4RJ, England
P.O. Box 8 (Cable: MISBOARD)
Telephone: Falmouth 313945
International Editors:
John Levett Paul Goldsack

Railway Age, established in 1856, is indexed by the Business Periodicals Index and the Engineering Index Service. Name registered in U.S. Patent Office and Trade Mark Office in Canada.
Published semi-monthly by the Simmons-Boardman Publishing Corporation, 508 Birch St., Bristol, Conn. 06010.
Subscription rates to all railroad, rail rapid transit employees and industrial traffic department employees in the U.S. possessions, Canada and Mexico, $8 one year, $12 two years, all other countries $20 one year. All other subscribers in the U.S. possessions, Canada and Mexico, $17 one year, all other countries $30 one year. All subscriptions payable in advance. Single copies 80c, except special issues.
Address all subscriptions, change of address and correspondence concerning them to Subscription Dept., Railway Age, P.O. Box 530, Bristol, Conn. 06010.
Change of address should reach us three weeks in advance of next issue date. Send old address with new enclosing, if possible, your address label. Post Office will not forward copies unless you provide extra postage.

Member of ABC RPI

POSTMASTER—SEND FORM 3579 TO P.O. BOX 530, BRISTOL, CONN. 06010.

Printed at the Hughes Printing Co.,34 North Crystal St., East Stroudsburg, Pa. 18301. Second-class postage paid at Bristol, Conn., and at additional mailing offices.

Inside

LUTHER S. MILLER

THAT OLD DOUBLE STANDARD

Inevitably, the question of nationalization of railroads arose, again and again, at the news conference which the United States Railway Association called in Washington Feb. 26 to announce its plan for restructuring the bankrupt carriers of the Northeast and the Midwest into a going private enterprise. One proposal which USRA trial-ballooned called for the takeover of ConRail trackage by a separate, Federally-controlled corporation to be known as ConFac. Wouldn't this, asked one reporter, be tantamount to nationalization? USRA Chairman Arthur D. Lewis replied that (1) he had worked for airlines for 25 years, (2) those airlines used Federally-financed airways and (3) he had never worked for a nationalized carrier. Then came another. Wouldn't Federal subsidies for branch lines be inconsonant with the spirit of private enterprise? Mr. Lewis was ready for that one, too. Noting that the airlines are presently getting Federal subsidies amounting to $60 million a year, he cited a recent instance of how this works: "I know of no more prosperous transportation company in North America than Delta Airlines. Now Delta just this past year was relieved of its responsibility to furnish local, money-losing service in the Northeast, and Air New England has been certificated to provide this service—under subsidy."

Perhaps Mr. Lewis's answers to these questions were published somewhere in the thousands of column inches of stories that came out of this press conference. If so, we haven't come across them. That old double standard which the public has for so long applied to the airlines and other subsidized "private-enterprise" carriers on the one hand, and the until-now unsubsidized railroads on the other, still seems to apply.

Our own account of the Feb. 26 proceedings begins on page 20. Our further thoughts on the nationalization question are on page 84.

ELECTRIFICATION: HOW MUCH? HOW SOON?

Main-line electrification? For years the wags have been saying it is just around the bend—and always will be. And for years they have been right. But soon, suggests William D. Middleton, they may need a new line. In submitting this issue's cover story (page 28), Middleton memoed: "Perhaps my admitted bias in favor of electrification colors my evaluation of the subject, but I remain convinced that the conditions favoring electrification are becoming stronger all the time. Very probably governmental assistance in the form of a loan guarantee program, or perhaps even outright grant assistance to help some of the start-up and the remaining technical problems, will be a necessary prerequisite. But once this kind of help is available—and I think it's coming—I believe we will see a gradual start to a new age of railroad electrification during the remainder of this decade. I wouldn't attempt to predict who will be first, but would suggest that it will probably be from among Burlington Northern, Union Pacific and Southern, all three of which combine some conditions that appear very favorable to electrification with an innovative management that seems to be looking into the subject quite seriously."

To the writing of almost any railroad story, Commander Middleton brings impressive credentials—but especially to this one: he is the author of a "traction trilogy," the last volume of which, "When the Steam Railroads Electrified," is reviewed on page 76 of this issue.

When it's "Standing Room Only"

Hold on

to the very Best in Rapid Transit Equipment.

Everyday millions of hands reach for Ellcon Hand Holds. Ellcon stainless steel hand holds, stanchions, seat barriers, windscreens and fittings are standard wherever new cars go into service or older cars are modernized. Ellcon-National's engineered products are available for cars and buses.

ELLCON NATIONAL INC.

30 KING ROAD, TOTOWA, NEW JERSEY 07512 U.S.A.

MEMBER RPI RAILWAY PROGRESS INSTITUTE

Circle 5 on Reader Service Card

RAILWAY AGE

MARCH 10, 1975

FEATURES

COVER
Cover design (based on a photo of EMD's test catenary going up at LaGrange, Ill.) is by Railway Age Art Director Maurice Mates.

SPECIAL REPORT

USRA's master plan for the Northeast and Midwest p.20

•

Electrification: Is it going to happen? p.28
Transit: SEPTA shows the way p.40
Computers, track-recorder car team up in battle against derailments p.52
Essay: The missing link in air travel p.66

NEWS

Study forecasts back-to-rails move . . . . . p. 8
The freight-car fleet: Down, but up . . . . . p. 8
Butler building new car facility . . . . . p. 8
In labor, two become one—almost . . . . . p. 8
Productivity unit is formed . . . . . p. 8
Rail exec, civic leader Roddewig dies . . . . . p. 8
A "grim" picture—and an appeal to the ICC p.10
BN adds up its post-merger gains p.16
For Atlanta: $80 million, and a promise p.80
UMTA sets up new operating-aid unit p.80
New power for the "Adirondack" p.80
WMATA produces a tunneling film p.80
SCRTD creates a rail section p.80
MBTA seeks to upgrade PC service p.80

OPINION

INSIDE — That old double standard . . . . . p. 5
LINES ON LABOR — Best time, worst time p.16
VIEWPOINT — "Take 'em over and run 'em right". . .into what? p.84
WATCHING WASHINGTON — Capital melodrama p.12

DEPARTMENTS

Advertising Sales Offices p.83
Bookshelf p.76
Carloadings p.79
Interchange p.68
Market Outlook p.79
Piggyback Loadings p.79
Products Report p.56
75 Years Ago p.78
Suppliers p.74

Short and Significant

STUDY FORECASTS BACK-TO-RAILS MOVE

A 235-page market research study just published by Frost & Sullivan predicts a major shift in transportation markets as a result of energy-conservation demands, with railroads among the principal beneficiaries. By 1990, says the F&S study, the railroad share of the total freight package should rise from 40% to 51%. F&S anticipates that by that time, piggyback will account for about 40% of all rail shipments. F&S foresees "an approximate outlay of $83 billion for rail and mass transit systems by local and Federal government over the next 15 years." Of this amount, $45.9 billion would go for construction and modernization, $27.3 billion for rolling stock, and $9.8 billion for signals and controls equipment and systems.

THE FREIGHT-CAR FLEET: DOWN, BUT UP

Final figures on 1974 now show that Class I railroad ownership of freight cars dropped by almost 20,000 units last year—but the capacity of the railroad-owned fleet went up slightly and the total car fleet increased by close to 10,000 units because of acquisitions by private owners. During '74, Class I roads installed 33,745 new cars and retired 53,585 cars; 34,260 cars were on order as of Jan. 1, 1975, up from 24,840 cars a year earlier.

BUTLER BUILDING NEW CAR FACILITY

Butler Manufacturing Co. has broken ground at a site in Murfreesboro, Tenn., for a plant that will manufacture railroad hopper cars and highway tank trailers. The 136,000-sq-ft Murfreesboro facility will supplement production of existing plants in Minneapolis and St. Paul. When it goes into operation in 1976, the new plant will employ about 200 persons.

IN LABOR, TWO BECOME ONE—ALMOST

The organizational split in rail labor has now been ended—sort of. This is the split that developed several years ago when a group of unions, including the three largest ones, broke away from the Railway Labor Executives' Association to form the Congress of Railway Unions. Now, after months of effort aimed at reunification, all but one of the CRU unions are to become RLEA affiliates effective April 1. The exception: The Brotherhood of Railway and Airline Clerks. CRU Chairman Al H. Chesser and RLEA Chairman C.J. Chamberlain, who led the fight for renunification, said the move would "strengthen rail labor's role in protecting the interests of railroad labor during the severe economic crisis we are facing in the country today, as well as in the future as we strive to restore the railroad industry as the No. 1 form of mass transportation in the country."

PRODUCTIVITY UNIT FORMED

Science Management Corp. has announced the formation of a special unit that will "deal specifically in productivity improvement and cost reduction programs" for railroads. The unit will operate under the direction of William P. Crawford as part of the Wofac Co., Science Management's largest division specializing in work measurement and productivity improvement. The unit's activities will include analysis of all personnel functions and requirements to establish better work methods, closer controls over inventory and support functions, M/W productivity improvement, and train-operation quality control.

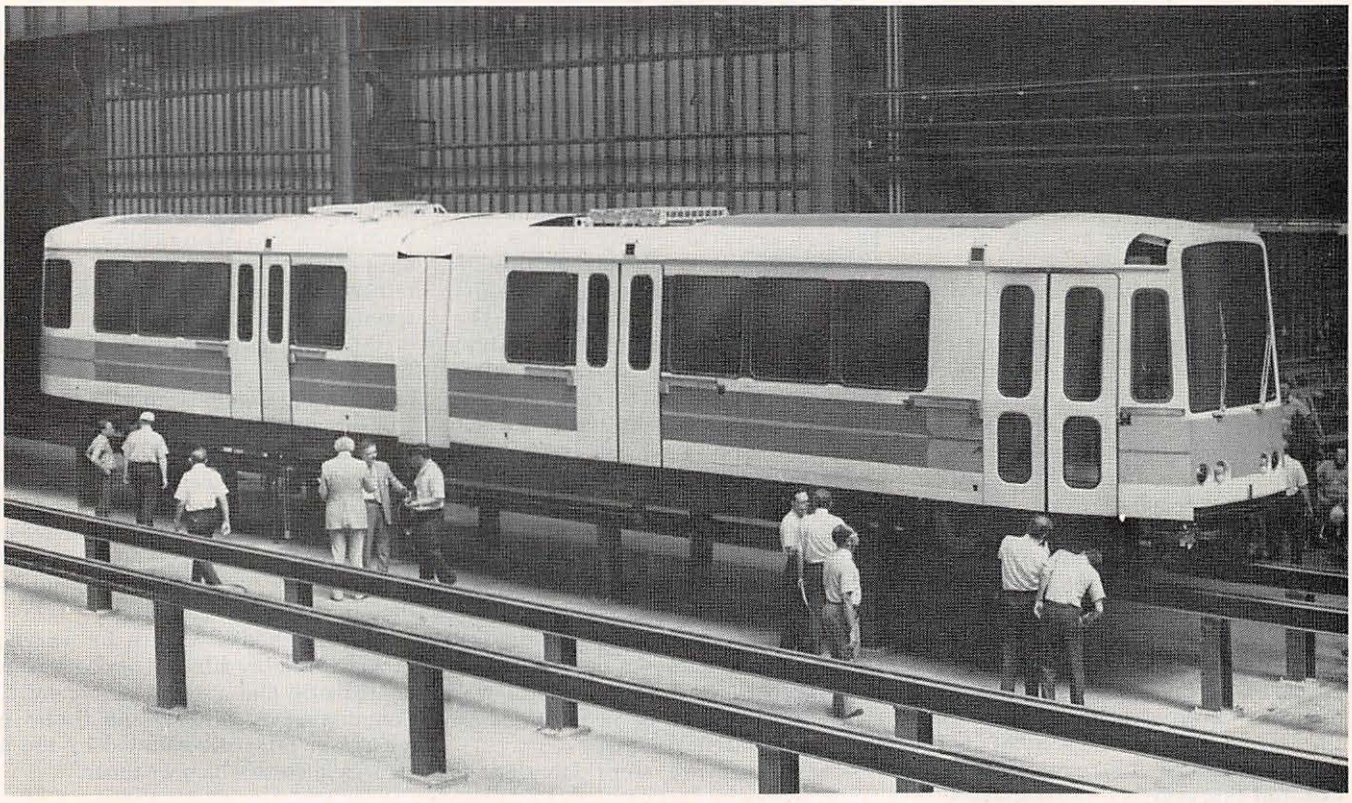
MACHINE TOOL SHIPMENTS ARE HIGHER

Machine tool shipments in January were 35% higher than in January 1974. Total shipments for January 1975, said the National Machine Tool Builders' Association, were $165.3 million. Export shipments were 68% above the equivalent 1974 month. Net new orders last January were 10% ahead of December 1974 levels, but 60% below January 1974 totals. Export orders in January were 4% higher than in December 1974, but 24% below January 1974 totals. At the end of January, the total machine tool industry backlog was $2,466.2 million.

RAIL EXEC, CIVIC LEADER RODDEWIG DIES

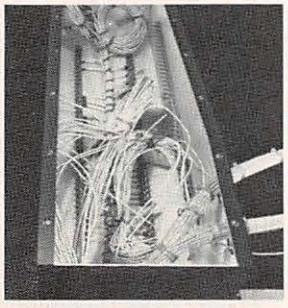
Clair M. Roddewig, former president of Chicago & Eastern Illinois and of the Association of Western Railways, died Feb. 23 in Hinsdale, Ill. He was 71. Mr. Roddewig was one of those rare individuals who manage to combine a career in business with what amounts to a second career in public service. Before joining C&EI as general counsel, he had been a state attorney general and wartime general counsel for the U.S. Office of Defense Transportation. He served as president of C&EI from 1949 to 1957, then moved to the presidency of AWR, a position he held until 1970. For a time during the AWR years, he was a member of the Chicago Board of Education, acting as its president from 1962 to 1964. After his retirement from AWR, he was appointed to the Chicago Transit Board and served as acting chairman for four months in 1973 during a critical financial period for the board and the Chicago Transit Authority. Somehow, he also found time during his career to play an active role in the affairs of 18 other organizations, including governmental bodies, educational institutions and hospitals.

THE DESIGN LIFE OF THIS CAR HAS TO REACH INTO THE NEXT CENTURY.



THAT MAKES TEFZEL A NATURAL FOR THE WIRE INSULATION.

Boeing Vertol is building 250 newly designed Standard Light Rail Vehicles for Boston's MBTA and San Francisco's MUNI. Delivery begins in early 1975. With a design life of 30 years, these electric subway/surface vehicles are built to meet high reliability requirements through year after year of rough use.



Boeing engineers carefully considered the wiring requirements for the SLRV—and specified Du Pont TEFZEL fluoropolymer as insulation for almost all the 20,000 ft. of wiring in each car. They wanted an insulation that would be mechanically tough and abrasion resistant in thin, space-saving constructions. That's TEFZEL.

They wanted an insulation that would resist transit car lubricants and acidic and alkaline car cleaning compounds. An insulation that can serve at up to 300°F for a wide margin of safety. That will not propagate flame. That contains no additives to compromise mechanical or electrical performance. Again, that's TEFZEL.

May we send you more details on this significant new application, and test data on the performance of TEFZEL fluoropolymer as a high-performance insulation? Write us before you specify the wire for your next rewiring or new transit car application. Address: Du Pont Company, Room 24486, Wilmington, DE 19898.

DU PONT
REG. U.S. PAT. OFF.

TEFZEL®
FLUOROPOLYMER

Circle 6 on Reader Service Card

A "grim" picture—and an appeal to the ICC

Burlington Northern Chairman Louis W. Menk's persistent talk of the need for a 15% freight-rate increase—on top of all the other increases the industry has won in recent months—has raised eyebrows not only in Washington but on some railroad properties. But that amount—and a little more—appears to be what the industry has now decided to go for.

Sketching what he himself described as a "grim" picture of the present state of railroad finances, and warning that the industry may operate in the red during this year's first quarter for the first time since 1961, AAR President Stephen Ailes has announced that:

—The railroads are asking the ICC to reconsider immediately its postponement of an earlier-requested 7% increase.

—In addition, the industry is contemplating a two-part request "to cover the costs of the emerging pattern of wage and fringe benefit increases. This request will seek an emergency 5.4% increase as soon as possible, with approval of a further adjustment to 8.1% when the second step of wage hikes in the current agreements become effective on Oct. 1 of this year."

Announcing the new rate proposals at a Feb. 20 meeting of the New York Traffic Club, Ailes blamed a deadly combination of inflation and recession for the industry's deepening financial troubles.

He made these points, among others:

—Inflation has now eroded all the benefits of the 10% increase which railroads won in Ex Parte 305 just nine months ago: "From April 1, 1974, when the carriers requested that increase, to January 1975, the index of material prices, excluding fuel, has jumped 29%. The cost of rail increased 39%, the cost of wooden crossties 25% and the average cost of a new freight car went up about 30%."

—"As bad as inflation has been in recent months, it now ranks second to recession on the list of railroad problems. In January, the traffic downtrend turned into a major decline. During the first six weeks of 1975, freight carloadings declined by 12.6% from the same period a year ago, and ton-miles decreased by 10%. The traffic downturn appears to be accelerating. For the most recent week, carloadings decreased 16.1% and ton-miles declined 14.1% as compared to the corresponding week of last year.

"The traffic decline results from an across-the-board reduction in industrial and agricultural production. Nineteen of the twenty-one commodity classes moved by the railroads during the first six weeks of 1975 are down. Only coal and metallic ore traffic have remained strong. Even so, the downturn in traffic has not occurred evenly. It has had greater effects on the higher revenue producing commodities. In 1973, five basic commodities hauled by the railroads produced half of the industry's revenues. These were food and kindred products, farm products, chemicals and allied products, coal and transportation equipment. So far this year, food products are off 15.8%, farm products 22.7%, transportation equipment 30.3% and chemicals and allied products 7%.

—"Railroad employment dropped 2% by mid-December, 2% more in the next 30 days, and, according to a preliminary survey, at least another 2% in the last 15 days of January. As unfortunate as these cutbacks are, they are still well short of what may be necessitated by the current traffic declines.

—"Last year we were laboring to avoid car shortages. Last week there were over 70,000 freight cars and 1,500 locomotives in storage."

Ailes concluded with an appeal—and a warning—to the ICC:

"I am deeply serious when I say that the situation the industry is in places a heavy burden of responsibility on the Commission. Management of any business in these times must act with remarkable wisdom and insight, with speed, with a thorough understanding of the situation in which that business functions, and with a high degree of luck. For the Commission to seek to control the number of freight cars ordered (as in Ex Parte 241), the use of proceeds of rate increases (as in Ex Parte 305), and the manner and timing of the industry's efforts to recover its increased costs in the market place (as in Ex Parte 310) may add up to more of a burden than the industry can bear. . .

"Many railroads' chance for survival in this incredibly difficult period depends on realistic and prompt action by the Commission on present and future increases in rates necessitated by the increases in costs which we incur."

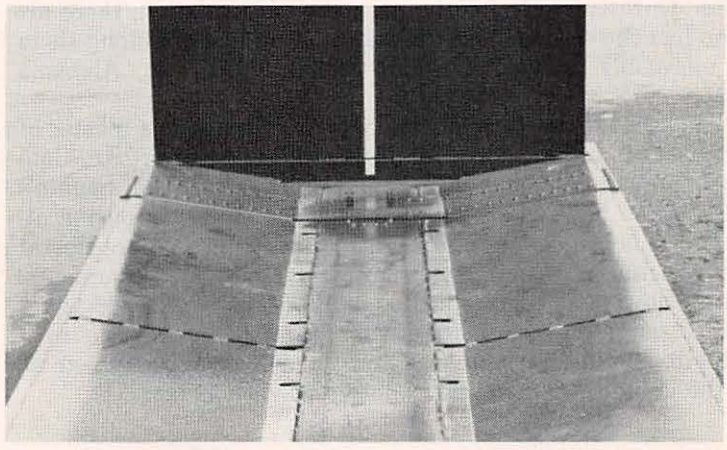
"A mighty fine line" in trouble

As Rock Island teetered toward collapse early in March, a lot of hands were reaching out to RI—some trying to pull it back from the brink and others, seemingly, just groping. Cash-squeezed RI appeared no longer the master of its fate, a conventional railroad bankruptcy appeared less than useful, and there were so many public and private agencies involved in studying "options" that it was hard to determine which of close to a dozen options had a reasonable chance of succeeding. RI's new management continued to petition for government aid—but USRA, which could approve that aid, showed extreme reluctance to go along and, in fact, even pulled back on an earlier okay of a $9.1 million loan. On its own, RI cut management salaries by 10% and tried to work out a similar deal on a "loan" basis with its employees—but there was serious question raised about the propriety of the move, let alone its likely effectiveness. As for takeover of RI and/or its traffic, few if any other roads appeared to have the resources to cover losses which would probably be sustained in the period between takeover and the working out of a cumbersome reimbursement procedure.

After repeated rebuffs in Washington, RI's board met on March 5—and many thought that out of that meeting would come a shut-down notice. Not so. President John W. Ingram issued a statement saying that the "surprise" early payment of two freight bills (by Trailer Train and Canadian connections, reportedly amounting to $1 million) would help carry RI through the middle of March. By that time, Ingram hoped USRA would have favorably reconsidered RI's plea for $100 million.

500 pulpwood cars for Family Lines System

Bethlehem recently delivered 500 77-ton bulkhead flat cars for use in pulpwood service by the Family Lines System (which includes SCL, L & N, Ga., Clinchfield, and West Point Route railroads). The cars are 54 ft 1 in. over strikers and 8 ft 6½ in. wide, and the bulkheads are 7 ft 8½ in. high. The sloping floor facilitates drainage and stabilizes lading. Each car can carry 32 cords of wood.



For over half a century Bethlehem has built quality freight cars at our Johnstown, Pa., plant. Our hoppers, covered hoppers, gondolas, and flat cars have measured up to everything that has been asked of them. These pulpwood flat cars will be no exception. Bethlehem Steel Corporation, Bethlehem, PA 18016.

Bethlehem BETHLEHEM STEEL

Watching Washington

R. M. M. McCONNELL

WASHINGTON MELODRAMA

Movie buffs who enjoyed the serial melodramas recounting the perils of Pauline—a hapless heroine who ran afoul of a number of villains, only to be rescued from death or worse at the last possible minute—probably feel a start of recognition at the Penn Central's periodic near-failure to get desperately needed Federal aid.

Several times over the past two years, Penn Central's trustees have announced that the railroad's deteriorated cash position would cause massive layoffs or a shutdown of all or part of the road. Sometimes, the trustees' prediction has proven premature, and enough money is found to let the Penn Central lurch through to the next crisis. And sometimes, Uncle Sam—usually disguised as the Secretary of Transportation—comes up with enough cash to postpone the crisis.

The most recent and most massive threat to continued Penn Central operation turned into melodrama of a high order when Ford administration efforts to get a $347-million package of grants and loan guarantees through Congress got trapped in a byzantine Senate debate that added nothing to the luster of democratic government.

FILIBUSTER ON FILIBUSTERS

The debate was over a Senate rule that demands a two-thirds vote to halt a filibuster. Liberals and moderates in the Senate, apparently supported by Vice President Nelson A. Rockefeller, want to change the rule to allow three-fifths of the senators to silence filibusters. Unfortunately for the progress of legislation, there are some who like the old rule just the way it is, and chief among them is the incredibly loquacious Sen. James Allen, an Alabama Democrat.

Allen has become known in his years in the Senate as a master of oratory aimed at talking to death legislation he doesn't like. Conservative support and a thorough knowledge of the Senate's procedural rules have made Allen successful in his filibuster attempts, and it is largely those successes that inspired more liberal legislators to find an easier way to cut off overextended comments. As a result, however, Allen launched a filibuster against changing the anti-filibuster vote and effectively brought the Senate to a halt. Caught at the crossing was the Ford legislation aimed at helping the Penn Central weather another cash shortage.

LIBERALS TO THE RESCUE

Despite a Saturday session called to push the rail bill through, the filibuster blocked Senate efforts to repeat House approval of the bill until liberals invoked the old two-thirds rule and cut off Allen's filibuster by a lopsided 86-8 vote that allowed the rail aid measure itself to come to a vote. Over significant opposition, the measure won approval 62-30, and went to the White House for President Ford's signature. The senators went back to listening to Allen.

The bill will authorize $150 million in Federal guarantees for loans made to financially ailing railroads, as well as an additional $197 million in cash grants. Both the Senate and House gave quick approval to appropriation measures needed to fund the cash grant program.

Which Only

Progress in electronic hot box detector systems

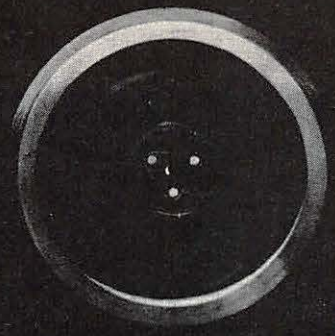
The "Decision-Maker" Universal Alarm System brings the state-of-the-art in hot box detection to a new high level. And that's just what you'd expect from the No. 1 company in the field—Servo, the industry's pioneer designer and leading producer.

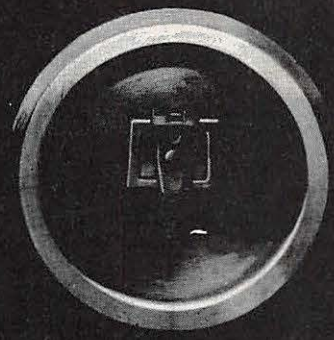
Since 1957, more than 1,800 SERVOSAFE Hot Box Detective Systems have been put into service world-wide, and have compiled an unequaled record of safety improvement, more efficient preventive maintenance procedures and cost reduction.

Hot box detectors available from Servo offer the widest flexibility in choice of system configuration, features and functional options. With our broad range of products and world-traveling network of field engineers, we can readily "customize" the design, manufacture, installation and operation of a SERVOSAFE System to best meet the particular requirements of your railroad.

You are invited to contact us for complete descriptive literature, or to arrange a field engineering site survey and application review—without obligation, of course.

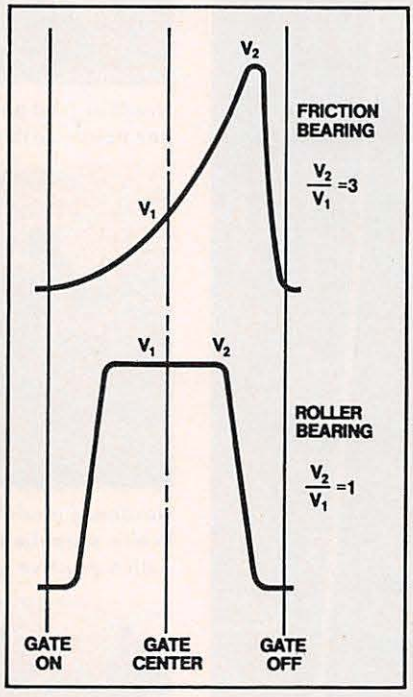
bearing has the hot box? the "Decision-Maker" knows!





Servo's new Universal Alarm System with automatic bearing identification*

The heart of our new Universal Alarm System is a unique bearing identification circuit known as "SWAT"—Split Waveform Analysis Technique. Because of their different heat transfer characteristics, roller and friction bearings produce different heat radiation "signatures" during the detector scan period. The SWAT circuit splits the gate scan period and compares V_1 with V_2. Typically, friction bearings produce a V_2/V_1 ratio of approximately 3, and roller bearings produce a ratio of approximately 1. The ratio sensed by the system is utilized to identify the type of bearing being scanned.



The "Decision-Maker" Universal Alarm is much more than the latest development in SERVOSAFE® Hot Box Detective™ Systems. It's a whole new concept designed to solve one of the toughest problems in hot box detection: **the difference in heat level characteristics between roller bearings and friction bearings**. The fact that normally-operating roller bearings run hotter than friction bearings has always presented a serious dilemma to railroad engineers. If you employ a low level alarm setting for early detection of overheated friction bearings, you run into the problem of too many false alarms on roller bearings. A higher setting to be consistent with roller bearings is not recommended as it can result in overheated friction bearings that pass by undetected.

Now, you don't have to make that difficult decision. Our new "Decision-Maker" Universal Alarm System will make it for you. It provides individually adjustable differential and absolute alarm levels for each type of bearing. It automatically distinguishes between roller and friction bearings, applies the proper alarm level, and actually makes the decision as to whether or not a hot box condition exists.

The Universal Alarm is available on new installations or as retrofit equipment for all existing models of SERVOSAFE Hot Box Detective Systems. If you'd like to put an end to the roller bearing vs. friction bearing problem, let us put the "Decision-Maker" to work on your railroad. Write or phone today for complete information.

*PATENT PENDING

servo

SERVO CORPORATION OF AMERICA

Hicksville, New York 11802
Phone 516-938-9700 • TWX 510-221-1872

Lausanne, Switzerland
Phone (021)29-98-73 • Telex 24 420 SERVO CH

Rio de Janeiro, Brazil
Phone (235)52-56 • Telex 30-9121 PB Rio

Circle 7 on Reader Service Card

Serving Safety Through Science

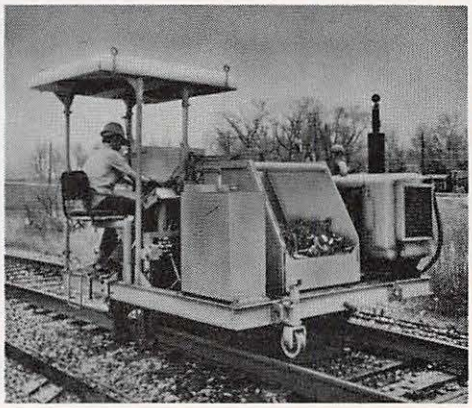
MEMBER RPI

You save time and money all along the line with this full line of Nordberg railway equipment.

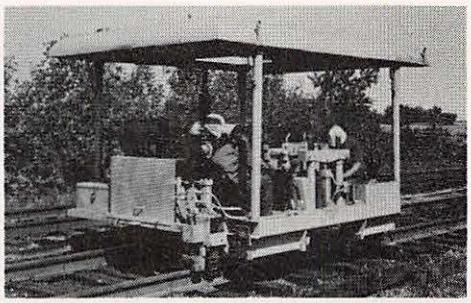
When you're responsible for the big job of railway construction and maintenance—tracks, roadways and structures—nobody has to tell you it's a full-time job. You need experienced people you can count on. You need occasional breaks in the weather. And you need equipment you can depend on.

For the precise tools and equipment you need, talk to us. You'll find we offer a full line of Nordberg railway equipment to meet your needs in all areas of railway construction and maintenance. Nordberg railway equipment. Precision engineered to keep things rolling.

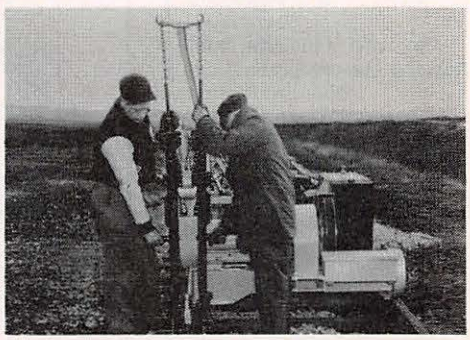
Rail renewal equipment



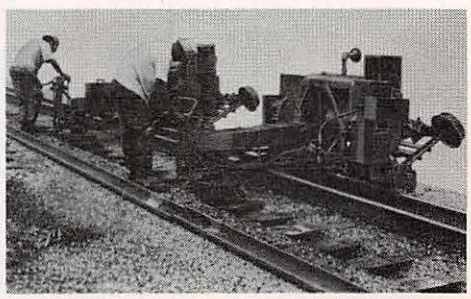
Nordberg anchor applicator applies 1080 anchors per hour... will boost production by 33% or more.



Nordberg rail gang spiker drives 1200 spikes per hour—with no impact!

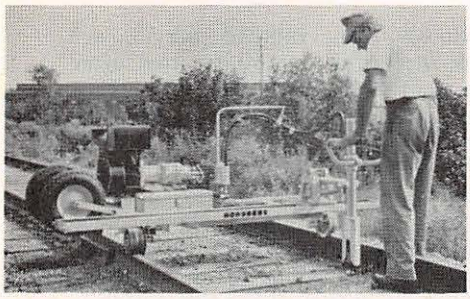


Nordberg model BP spike puller is hydraulically propelled and speeds spike pulling with a positive, powerful pulling force.

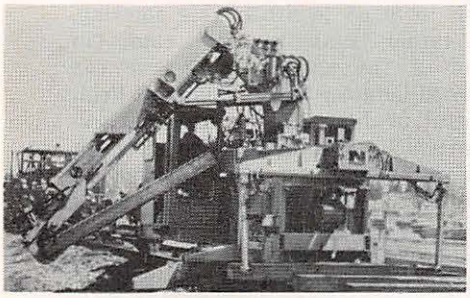


Nordberg adzer...a one man, self-propelled unit which cuts tie plate seats quickly and uniformly.

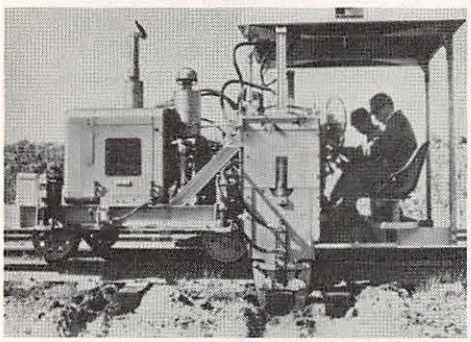
Tie renewal equipment



Nordberg hydraulic spike puller easily handled by one man to pull spikes on both rails.

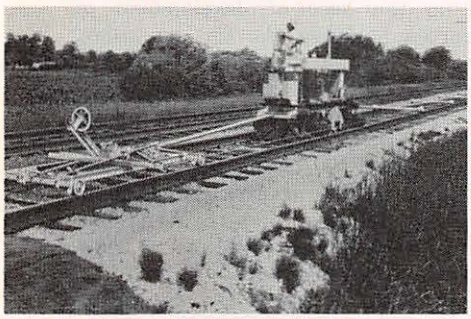


Nordberg one man scarifier inserter (OMSI) inserts up to 200 ties per hour.



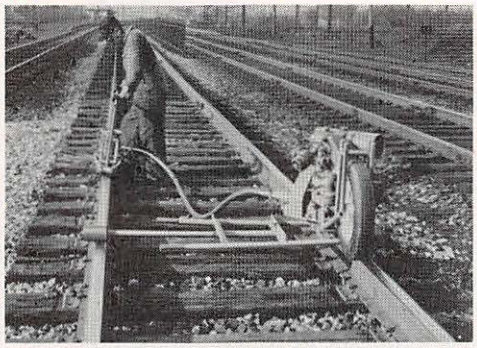
Nordberg hydra-spiker hydraulically drives up to 700 spikes per hour with a quiet, smooth, continuous motion.

Lining equipment

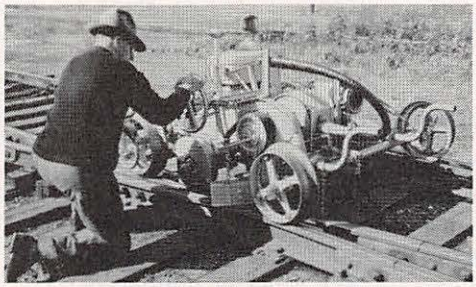


Nordberg Trakliner and line indicator team up to bring new speed and accuracy to your lining operations.

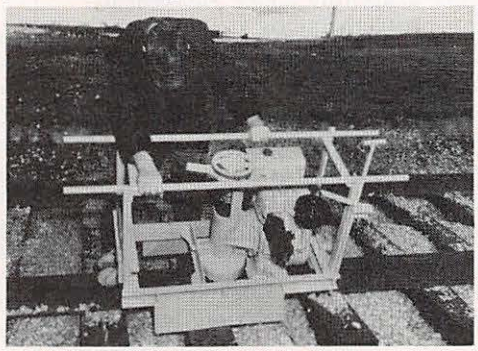
Rail grinders



Nordberg utility grinder is a cost-cutting, all-purpose power tool for a wide variety of maintenance jobs.

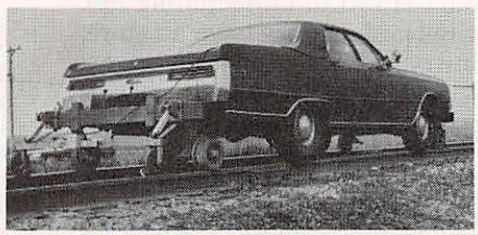


Nordberg heavy-duty rail grinder gives fast, powerful cutting.



Nordberg Surf-Rail grinder for grinding joints after welding.

Track inspection



Nordberg track inspector—a single, efficient unit that does two jobs at once . . . indicates cross level and gauges track.

For all your right-of-way maintenance

1. Self-Propelled Adzer
2. Hydra-Spiker
3. Line Indicator
4. Plate Placer
5. Power Jack
6. Rail Drill
7. Rail Gang Spiker
8. Rail Grinder
9. One-Man Scarifier-Inserter
10. Spike Hammer
11. Spike Puller
12. Spike Straightener
13. Surf-Rail Grinder
14. Switchliner
15. Track Inspector
16. Tie Drill
17. Tie Spacer
18. Trakliner
19. Dun-Rite Gager
20. X-Level Indicator

Nation wide representation to serve you

GEORGE M. COOPER COMPANY
1913-C South Stewart
Springfield, Missouri 65804
417/881-5511

EASTERN RAILWAY SUPPLIES, INC.
28 Main Street
Kingston, New Jersey
609/924-7880

EASTERN RAILWAY SUPPLIES, CANADA, LTD.
1608 The Queensway,
West Building, Rm. W-104
Toronto 18, Ontario, Canada
416/259-0424

PACIFIC RAILWAY SALES
229 Harrison Street
Oakland, California 94607
415/465-5955

PRAIRIE EQUIPMENT & RADIATORS, LTD.
310 Burnell Street
Winnipeg 10, Manitoba, Canada
204/774-1956

RUSSELL RAILWAY SUPPLY
4940 Viking Drive, Rm. 540
Minneapolis, Minnesota 55435
612/835-5125

SOUTHEASTERN RAILWAY SUPPLY, INC.
P.O. Box 270 (933 North Kenmore)
Arlington, Virginia 22210
703/525-0230

STANLEY H. SMITH & COMPANY, INC.
9689 Brookpark Road
Cleveland, Ohio 44129
216/398-3665

AMERICAN EQUIPMENT COMPANY
(INTERNATIONAL)
150 E. Palmetto Park Rd.
Boca Raton, Florida 33432
305-391-8941

For more information, contact the above or Rexnord Railway Equipment Division
P.O. Box 383
Milwaukee, Wis. 53201

Rexnord

Circle 8 on Reader Service Card

Lines on Labor

GUS WELTY

BEST TIME, WORST TIME

So, once again, it's springtime. the time when all those young men and women are getting ready to leave behind college or university days. The time when all those even-younger men and women are preparing to pick up their high-school diplomas. And what do they have to look forward to? A period which might aptly be described as the worst of times for them—but maybe the best of times for employers; in short, they face a buyer's market in which almost any employer can afford to be very careful in picking and choosing. Railroad employers, too? Yes, railroad employers, too—though with layoffs cutting into supervisory and management ranks, there's question as to how active railroad employers will be in the flesh market and the brain market.

FOR RAILROADS, A GOOD SCENE TURNS BAD

Ironically, the economic rout that has set in is doing its dirty-work just when the industry seemed to be making good progress on a variety of "people" fronts. For about a year, total rail employment had been making steady if not spectacular gains. Young people, the record seems to indicate, were coming to have a better opinion of railroads. Management/labor relations were being conducted calmly, rationally. The industry was grappling more successfully with the minority hiring/promotion problem facing it (along with just about every other industry). Training programs were being expanded, in both management and rank-and-files areas. But then came the rout. The employee count began dropping as road after road started furloughing hundreds even thousands of people. All sorts of programs, including "people" programs, came up losers in the battle of the budget. Minority programs had to be suffering, because it stood to reason that many minority employees were fairly recent hires. And there were all those soon-to-be graduates, about to plunge into a job market in which the most secure employment to be found might be that offered by your friendly neighborhood Army recruiter.

IN RAILROADING, WHAT OPPORTUNITY IS THERE?

It remains to be seen what the current situation will mean in terms of present and future personnel policies. Certainly, the industry will not be hiring as many of a new crop of graduates as before. But, the smart roads know they can't afford to let recruiting just dry up, the smart kids know that railroading does have a future, and it just could be that the industry will come up with an excellent Class of '75—smaller, but better. Actually, it almost has to be that way because even as furloughs are taking their toll toward the bottom, attrition is working away at the top and in the middle and opportunities are still being created. Too, attrition or turnover rates have a way of being higher than sometimes anticipated—with early retirement and various other factors playing a role. One example: In one railroad merger of the '70s, the merging roads agreed to protective conditions that raised a lot of eyebrows; but the makeup of the work force has changed, and today it's estimated that employees not covered by the merger agreements make up about 30% of total employment. That's change. And change creates opportunity. And opportunity looks around for somebody to take advantage of it. That's one reason why the Class of '75 should keep on knocking on railroad doors.

BN adds up its post-merger gains

Obviously, some railroad mergers are more successful than others—and, after five years of existence, Burlington Northern is counting itself among the winners.

The figures are impressive: Since BN came to life March 2, 1970, as the nation's longest railroad, (1) revenues have climbed from a bit more than $1 billion to $1.55 billion in 1974, (2) earnings have shot up from $26.4 million in 1970 to $84.3 million last year, and (3) per-share earnings, $2.01 in '70, have risen to $6.65 in 1974. This showing, BN rather pointedly notes, came "in spite of the shadow cast over the railroad industry by the failure of Penn Central in June 1970, a financial collapse which shook investor confidence in railroads and forced BN to postpone a bond offering planned for that year."

Equally impressive is the record as to what's been done with the railroad since merger: Over the five-year period, BN has spent approximately $928 million on capital improvements, while operating costs have added up to $5.7 billion, including $3.3 billion in total employee compensation and $134 million in state and local property taxes. On the capital side, a major line change costing $17.5 million was made at Spokane; a $22.5-million microwave network covering 4,582 miles was completed just last year; and BN made its biggest single capital expenditure for plant in the Northtown Yard project in the Twin Cities area, a project which will cost $42 million by the time it's finished next summer. The yard, longest on the system, is already in partial operation (RA, Jan. 13, p. 8).

Five years have also seen reorganization and expansion of the corporation. Almost two years ago, BN realigned itself into a transportation division and a natural resources division, a move aimed mainly at speeding up the pace of development of resources holdings. As for expansion, there's Burlington Northern Air Freight, an air freight forwarder which now ranks fifth in revenues in an industry with about 300 companies; there's also BNL Development, a subsidiary formed to prepare selected non-rail real estate properties for commercial development leading to long-term appreciation and income.

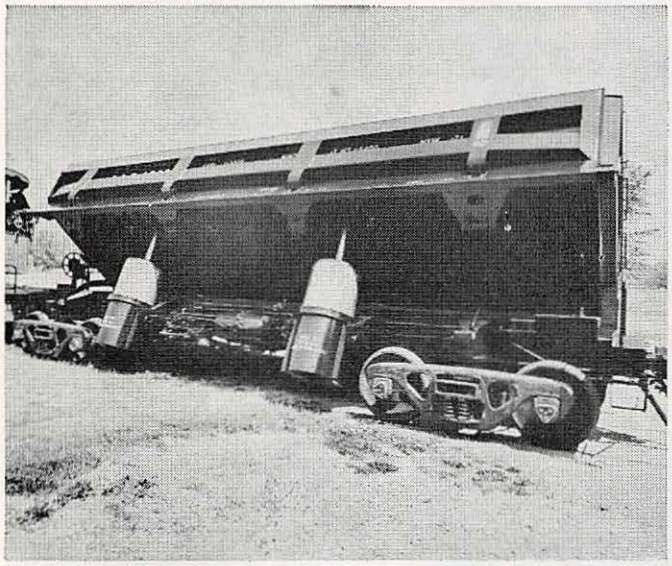
And what about tomorrow? BN Chairman and Chief Executive Officer Louis W. Menk has this to say: "Our track record during our first five years is solid evidence that the merger was well-conceived and soundly implemented. As a result, BN is today a strong and growing company."

DIFCO AIR DUMP CARS

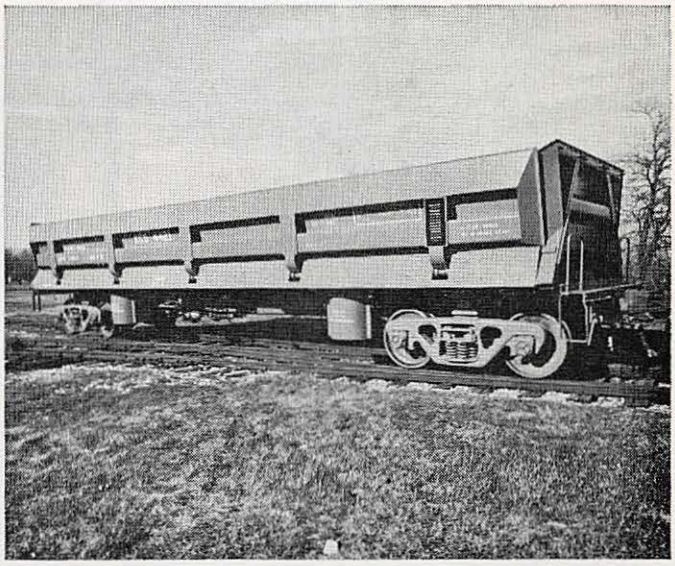
Industrial • Mine • Railroad

40, 50, and 60 cubic yard capacities

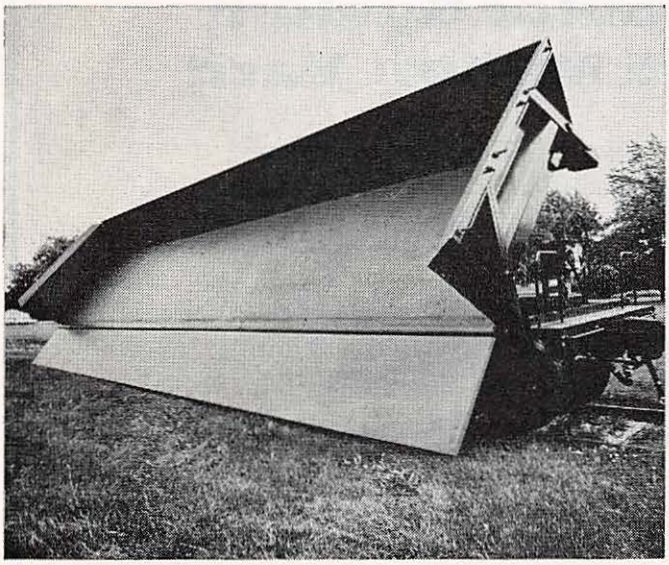
For well over 50 years, DIFCO has been a leading designer and builder of rugged, big capacity railroad haulage systems and equipment. A continuing program of design improvements and innovations has kept pace with change and the constant demand for better, modernized equipment. A full range of field-proven DIFCO air side dump cars is offered for mine and industrial use for both domestic and export markets—in sizes up to 60 cubic yards. We also design and build mine locomotives; air-controlled, quick acting Rotary Dumpers; and specialized underground mine cars. Inquiries are invited. Call, write or wire.



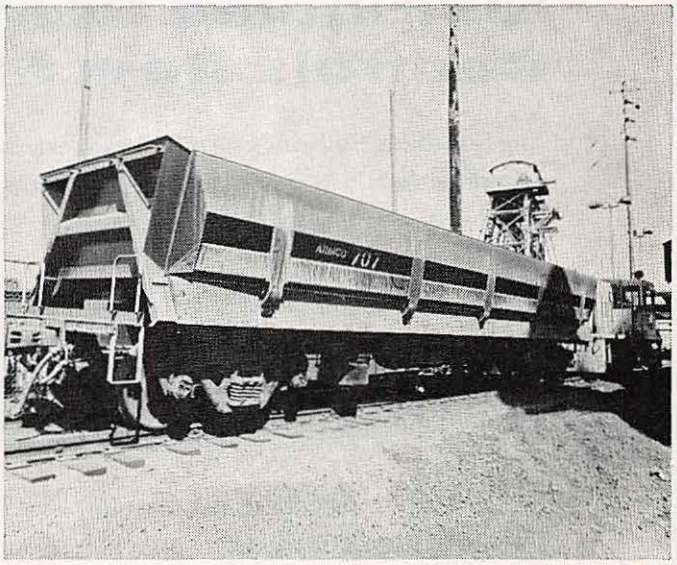
DIFCOs raise smoothly to a self-cleaning 50 degree angle and dump to either side in 8 seconds! Built for the Chessie System, this car has a 40 cubic yard, 77 ton load capacity with a 31′ 9″ inside length.



DIFCO Air Side Dump Cars—like this 50 cubic yard, 77 ton load capacity car built for Kansas City Southern, are designed to take the heaviest loading abuse . . . they weigh less, carry more and offer unmatched ton-mile economy.



DIFCO's body-tilting, door-opening arrangement is a patented feature that provides maximum load cast. This car, built for Southern Pacific, has a 41′ 9″ inside length for a 50 cubic yard capacity and 100 ton load.



DIFCOs are built to take it—all-welded construction and a double fulcrum design assure complete ride control and stability. This car, built for Armco, offers a 41′ 9″ inside length for a 60 cubic yard capacity and 100 ton load.

Differential Air Dump Cars • "Axless" Truck Mine Cars • Locomotives • Rotary Car Dumpers

D732 DIFCO, INC., FINDLAY, OHIO 45840 • PHONE 419—422-0525

Circle 9 on Reader Service Card

GRS
Distributed Computer System Controls New $15 Million Yard

The Southern Railway's new $15 million, 32-track yard at Sheffield, Alabama, expedites traffic in the Memphis-Chattanooga-Birmingham triangle. Computer planned east and west train routings from Sheffield Yard help to speed Southern freight through large metropolitan areas.

The Southern chose the GRS Distributed Computer System for precise control of the classification process. From the time a car enters the receiving yard until it leaves in a new train, the DCS system controls the process — from the recording of vital management information to careful handling into the proper class track.

For more information, ask for our full color, eight page brochure describing and illustrating this modern yard.

GENERAL RAILWAY SIGNAL COMPANY
A UNIT OF GENERAL SIGNAL
ROCHESTER NEW YORK 14602

3580

Circle 10 on Reader Service Card

Any time you need car parts, call one of these numbers.

201-842-3737
R. A. Corley,
Little Silver, N.J.

215-563-5966
Frank W. Hughes,
Philadelphia, Pa.

412-366-1840
Ron M. Giallonardo,
Pittsburgh, Pa.

703-536-5135
Harvey R. Lambert,
McLean, Va.

312-398-7951
R. J. Hughes,
Chicago, Ill.

318-221-2448
Earl Zapp
Shreveport, La.

612-227-6511
John I. Larson,
St. Paul, Minn.

402-391-1410
Joe F. Lysaught,
Omaha, Neb.

314-724-7850
William J. Xander,
ACF-St. Charles, Mo.

313-365-5880
John J. Kobiela,
Detroit, Mich.

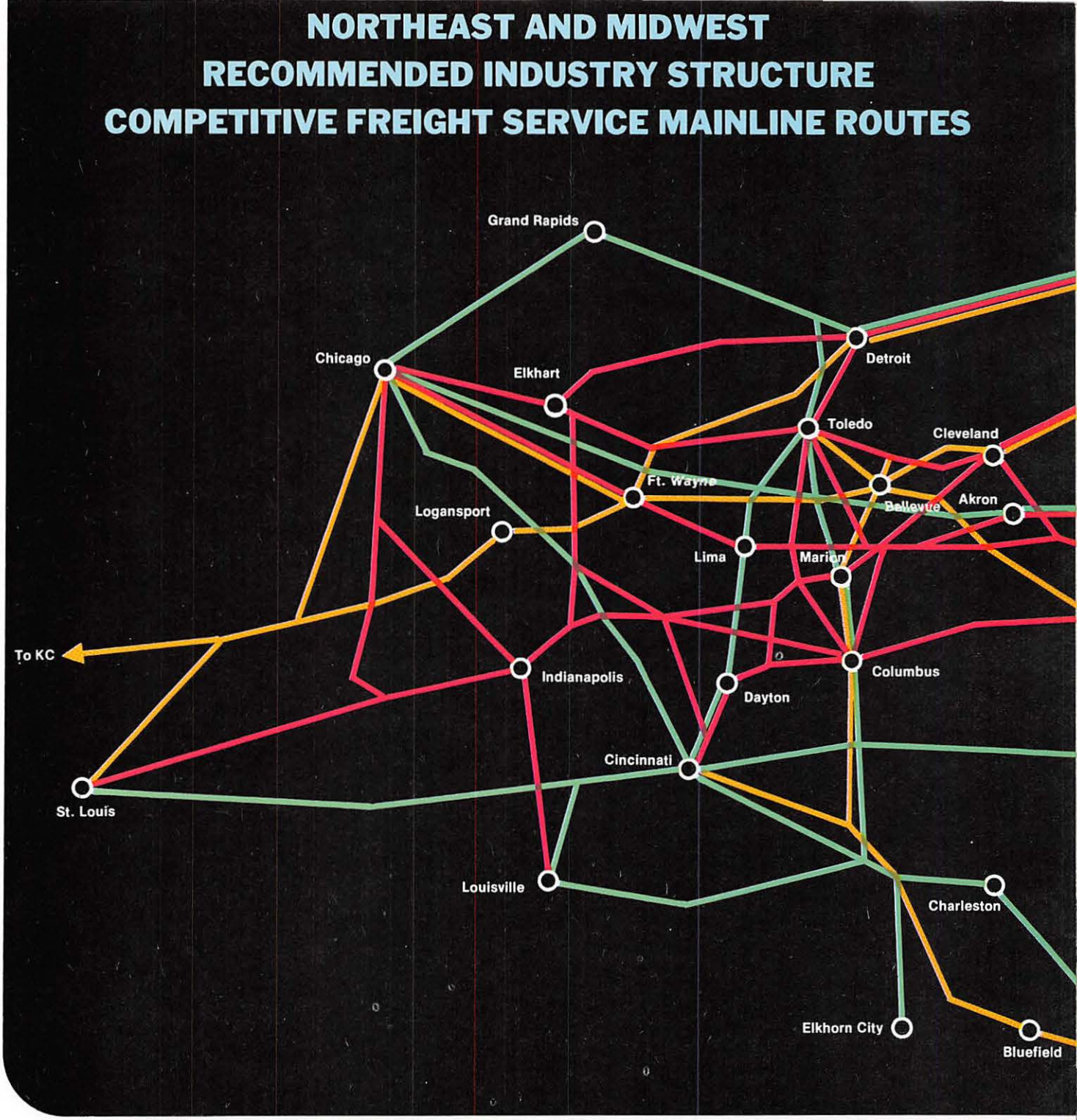
212-986-8600
Bob Alexander,
ACF-New York, N.Y.

415-362-1143
Rudy DiCarlo
ACF-San Francisco, Ca.

These are the ACF sales representatives who can save you time, effort and frequently money when you need freight car parts.

acf Amcar Division ACF Industries Incorporated, Amcar Division, 110 Clark Street, St. Charles, Missouri 63301

Circle 12 on Reader Service Card



SPECIAL REPORT:

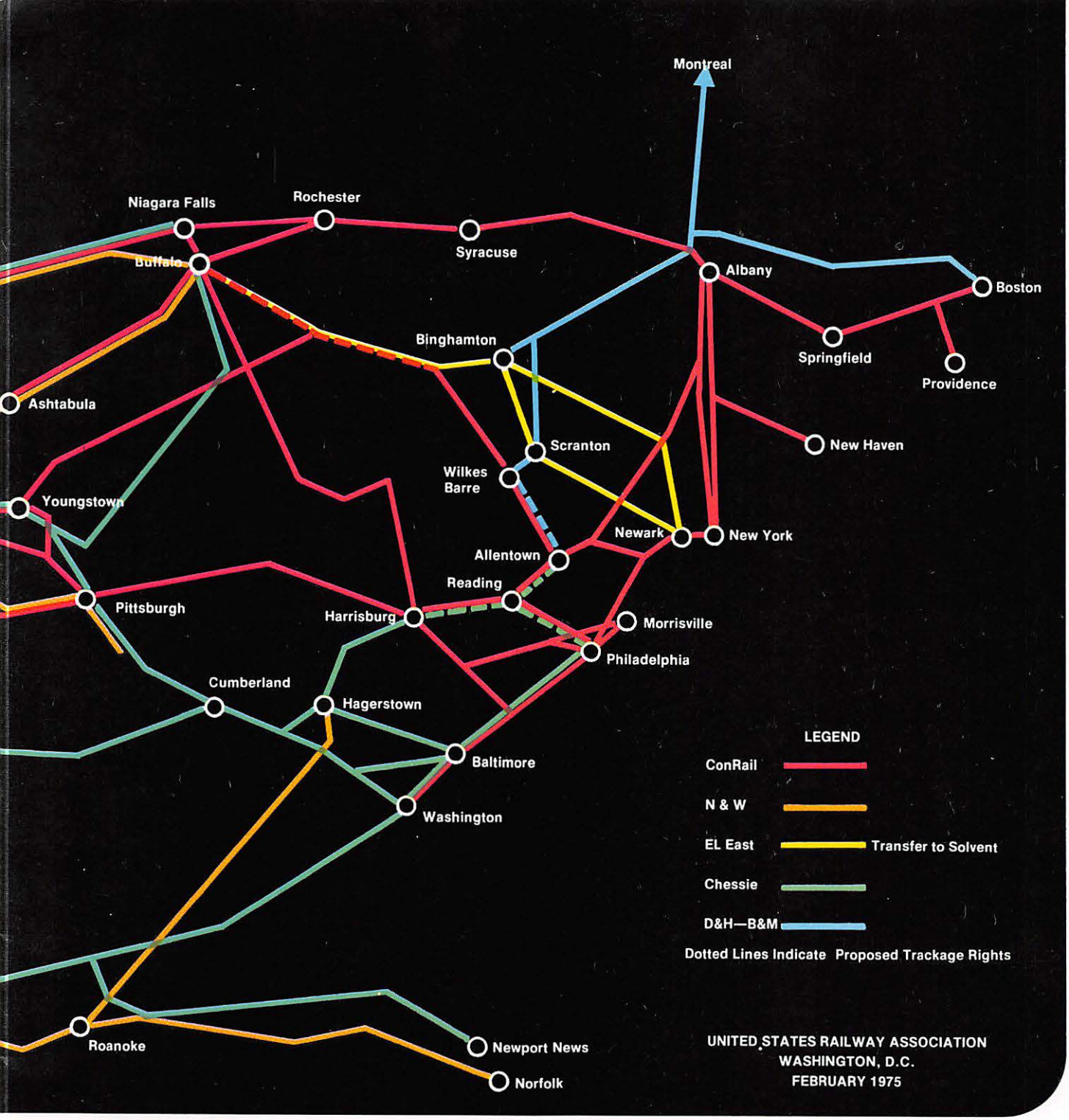
USRA's master plan: Big, bold —and expensive

By LUTHER S. MILLER, Editor

With bold, sure strokes, Federal government planners have redrawn the railroad map in the northeastern quadrant of the United States.

Euqally boldly—but with far less certainty—they have pinned a price tag of nearly $10 billion to the massive rehabilitation and modernization effort that will be needed to transform this map—and an accompanying two-volume, 820-page, 600,000-word "Preliminary System Plan" report—into more than just a costly exercise by the U.S. Government Printing Office.

To the widely-publicized $7.3 billion which the United States Railway



Association says will be needed to rebuild the track and beef up the equipment fleet of the proposed new ConRail system must be added a not-so-widely-publicized $2 billion which the Department of Transportation figures will have to be invested in the Boston-to-Washington Northeast Corridor lines which Amtrak, under the USRA plan, will take over for high-speed passenger service.

And on top of that, there will be other costs—for acquisition of property from the present owners, for employee protection, for branch-line subsidies. Estimates range widely, and sometimes wildly, from the hundreds of millions to the billions.

So it's a costly plan—far more costly than Congress envisioned when it wrote the enabling legislation 14 months ago. But most railroad observers feel it's a good one—if it works.

● **The system plan.** The plan which USRA unveiled at an overflow news conference in Washington Feb. 26, four months after the original deadline set by the Regional Rail Reorganization Act of 1973, calls for:

—A 15,000-mile new railroad, **ConRail,** consisting of "the present Penn Central, the Reading (less the Reading's Philadelphia and Allentown markets), the Lehigh Valley (from Newark to the point where it intersects the Erie Lackawanna west of Binghamton, N.Y.), the Central of New Jersey, the Pennsylvania Reading Seashore Lines, the Lehigh & Hudson River and the Ann Arbor railroads." The ConRail system would include 3,400 miles of light-density lines previously considered for abandonment; it would "provide carriage for more than 95.5% of the traffic currently generated by the region's shippers." It would not include 6,200 miles of light-density lines presently operated by the seven bankrupt carriers covered in USRA's planning—handling 4.5% of total traffic—though provision is made for continuation of service on these lines for two years under federal/state subsidies.

—A **Norfolk & Western** system

operating over present NW lines "plus the Erie Lackawanna lines from Buffalo to Binghamton and on to Newark. The resulting system would enable the Norfolk & Western, the Delaware & Hudson and the Boston & Maine to operate as an integrated system, should they choose to do so."

—A **Chessie** system operating over present lines "plus the Reading's Philadelphia and Allentown markets. Because the Reading route from Harrisburg to Allentown and Philadelphia also would be main ConRail routes, Chessie's access probably would be provided through trackage rights."

— The **Delaware & Hudson** operating over current lines "plus. . .the Lehigh Valley line from Wilkes-Barre to Allentown. This would protect the Delaware & Hudson's current north-south traffic and establish a 'friendly' connection with the Chessie."

—The **Boston & Maine**, the **Maine Central**, the **Bangor & Aroostook**, and the **Grand Trunk Western** retaining their present independent status, as would the **Detroit, Toledo & Ironton**, and the **Pittsburgh & Lake Erie.** "They also would be strengthened through. . . coordination projects."

—Turnover to **Amtrak**, either through purchase or lease, as provided by the Regional Rail Reorganization Act, of the Penn Central's main Boston-to-Washington lines, which would be dedicated to high-speed intercity passenger service and commuter operations. This would relieve ConRail of "primary financial and operating responsibility for the Northeast Corridor." Freight operations would be shifted to parallel routes.

USRA also proposed new or improved passenger service in 16 other short-to-medium-distance corridors in densely populated areas: "The most significant new corridor service would be provided between the cities of Cincinnati and Detroit, Cleveland and Pittsburgh, Chicago and Cleveland and Washington and Pittsburgh. The services recommended would be intermediate speed (80 mph), modest frequency operations. Improvement from that base could proceed if demand warranted. The startup date for most services will be three to five years hence as most will utilize ConRail track which must be rehabilitated."

• **Two big question marks.** Will the two big "solvents" in the picture—Chessie and NW—go along with the USRA plan? Frankly, USRA doesn't know—but the association's chairman, Arthur D. Lewis, told the Washington news conference, "Chessie and NW are sufficiently interested that we are warranted in proposing to the public that this might be a solution." Right now, said USRA's report, "Each solvent is examining the proposal in terms of its responsibility to its shareholders, with a view to minimizing the financial risk involved. Should both of these solvents decide that it is not in their best interest to participate in the proposed restructuring, USRA would need to adopt one of the less satisfactory options."

One option would be to create two separate operating entities "supported by Federal funding with the explicit purpose of providing competition." Another would be "organizing ConRail I as a monopolistic carrier on the eastern seaboard." Of the two, USRA prefers the former—specifically, the creation (in addition to ConRail) of a corporation called "MARC-EL, a second trunk-line east-west carrier based on the merger of EL with the key properties of CNJ, LV and Reading (essentially the Middle Atlantic Corporation). To improve competitive balance in the Midwest, it is contemplated that MARC-EL would be given access, through joint ownership of trackage rights, of ConRail lines to such gateway points as Cincinnati and St. Louis. To complete the development of an effective competitor, consideration should be given to including DT&I and P&LE. Any opportunities for plant rationalization would be carried out, such as paired track arrangements between Mansfield, Ohio and Chicago."

• **Rehabilitation.** With many an "if" and "but," USRA projects that ConRail—which it emphasizes is "not intended to be a composite of the bankrupt carriers, but a revitalized, restructured railroad"—will show a pretax profit of $161 million by 1980 (after sustaining a first-year loss of $91.4 million).

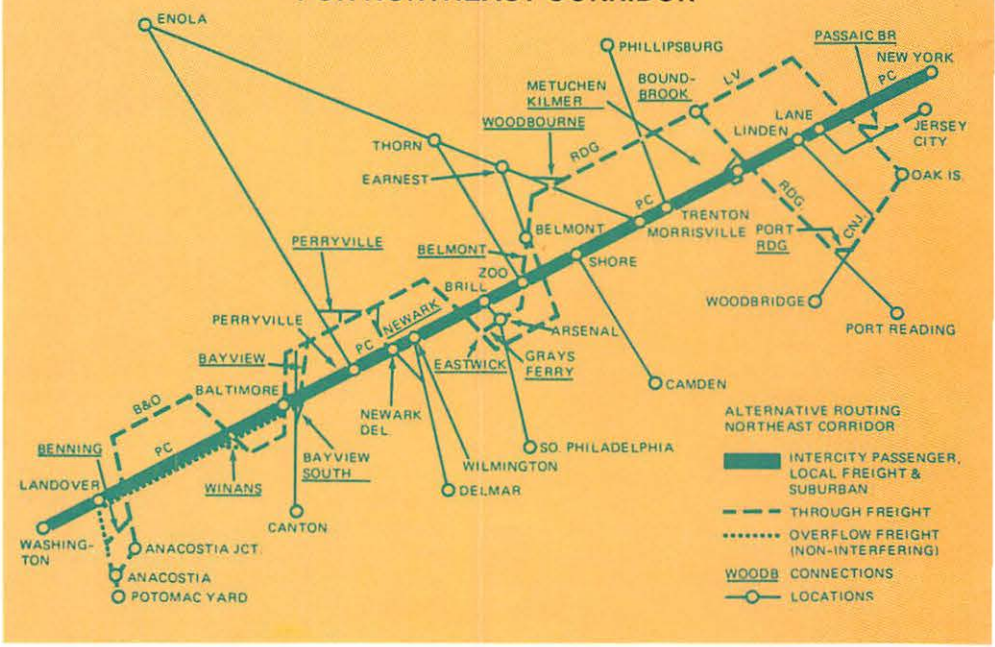
"ConRail is not intended to be a composite of the bankrupt carriers, but a revitalized railroad. . . ."

USRA Chairman Arthur D. Lewis, flanked by USRA President Edward G. Jordan, at Feb. 26 news conference in Washington.

Railway Age Photo/Maurice Mates

But this can happen only if a number of other things happen—including, says USRA, a vast rehabilitation program for track, facilities and equipment. For fixed plant, USRA estimates ConRail's investment needs to be around $5 billion (in inflated dollars) over a 14-year period beginning in 1975. In addition, USRA's plans include a 10-year equipment program, which could cost $2.3 billion, calling for acquisition of 800 new locomotives, 20,000 new freight cars, and rehabilitation of 110,000 existing freight cars. "Federal funding will be needed in some magnitude each year for the entire period of the rehabilitation program. However, the peak Federal involvement is forecast to be in the tenth year when it will stand at $2.986 billion," says USRA, adding:

PROPOSED ALTERNATE ROUTING FOR NORTHEAST CORRIDOR

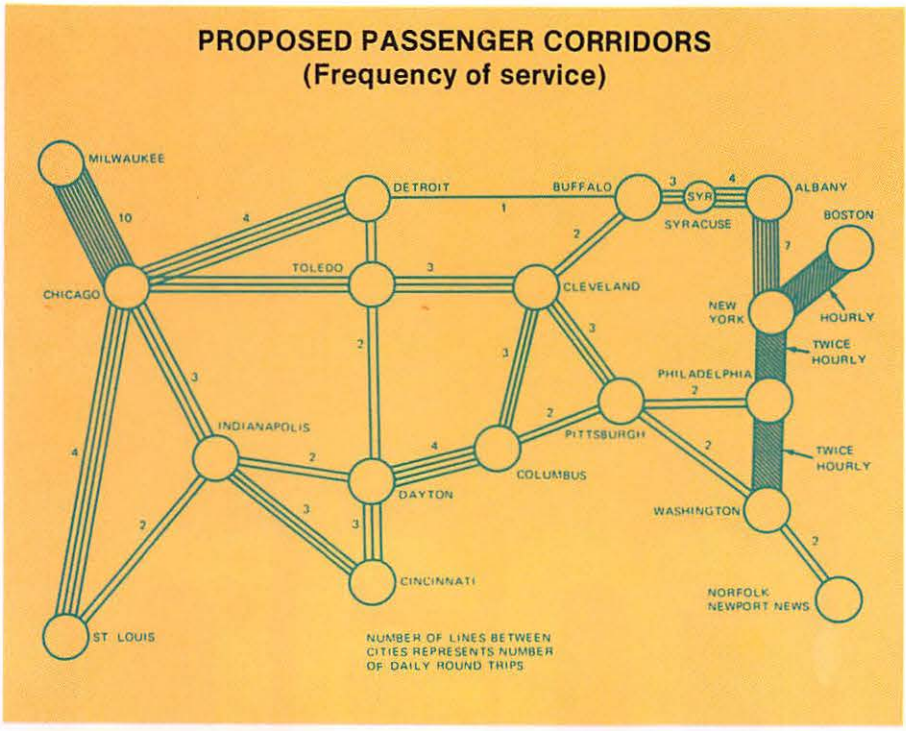


"Federal debt will remain over 50% of the total debt for ConRail for many years following that unless private financing becomes available to permit ConRail to refinance its Federal borrowings. Federal loans or guarantees are needed to provide working capital for the company, pay rehabilitation costs and other capital expenditures and to pay interest on such Federal loans. For example, during the first 10 years, it is anticipated that ConRail will pay to the Federal government interest charges totaling $674 million."

Under the RRR Act, control of ConRail's 15-member board is to be vested in eight government members as long as 50% or more of the corporation's outstanding indebtedness consists of USRA obligations or "other debts owing to or guaranteed by the United States"—and it is this prospect of long government control of a private corporation that has caused USRA to examine the possibility of creating the Consolidated Facilities Corp. (ConFac).

● **The thinking behind ConFac.** Right now ConFac is only a proposal "for discussion by the public and the Congress." USRA won't decide whether to make the proposal into a formal recommendation for two or three more months.

As USRA describes it: ConFac. . . would acquire the right-of-way and structures after those assets have been conveyed to ConRail. ConFac would use government provided or guaranteed funds to rehabilitate its right-of-way and structures and then make them available to ConRail for operation as a transportation system.



"This form of financing would identify the Federal government with the activity absorbing most of the Federally guaranteed funds and potentially reduce government managerial involvement in the operation of the railroad.

"ConFac can be structured in one of three ways: As a private corporation using appropriately safeguarded government guarantees to fund rehabilitation of track; a wholly-owned government corporation; or a mixed-ownership corporation owned jointly by the using railroad and the Federal government. For each option it may be assumed that appropriate charges would be paid reflecting either (a) interest only, (b) retirement of principal or (c) a formula reflecting total financing and variable user charges.

"ConRail's management of transportation operations need not be changed if ConFac financing is used, and ConRail still could be responsible for track maintenance and the physical aspects of the rehabilitation program. In this respect, ConFac would perform the role of a financing source rather than a property owner."

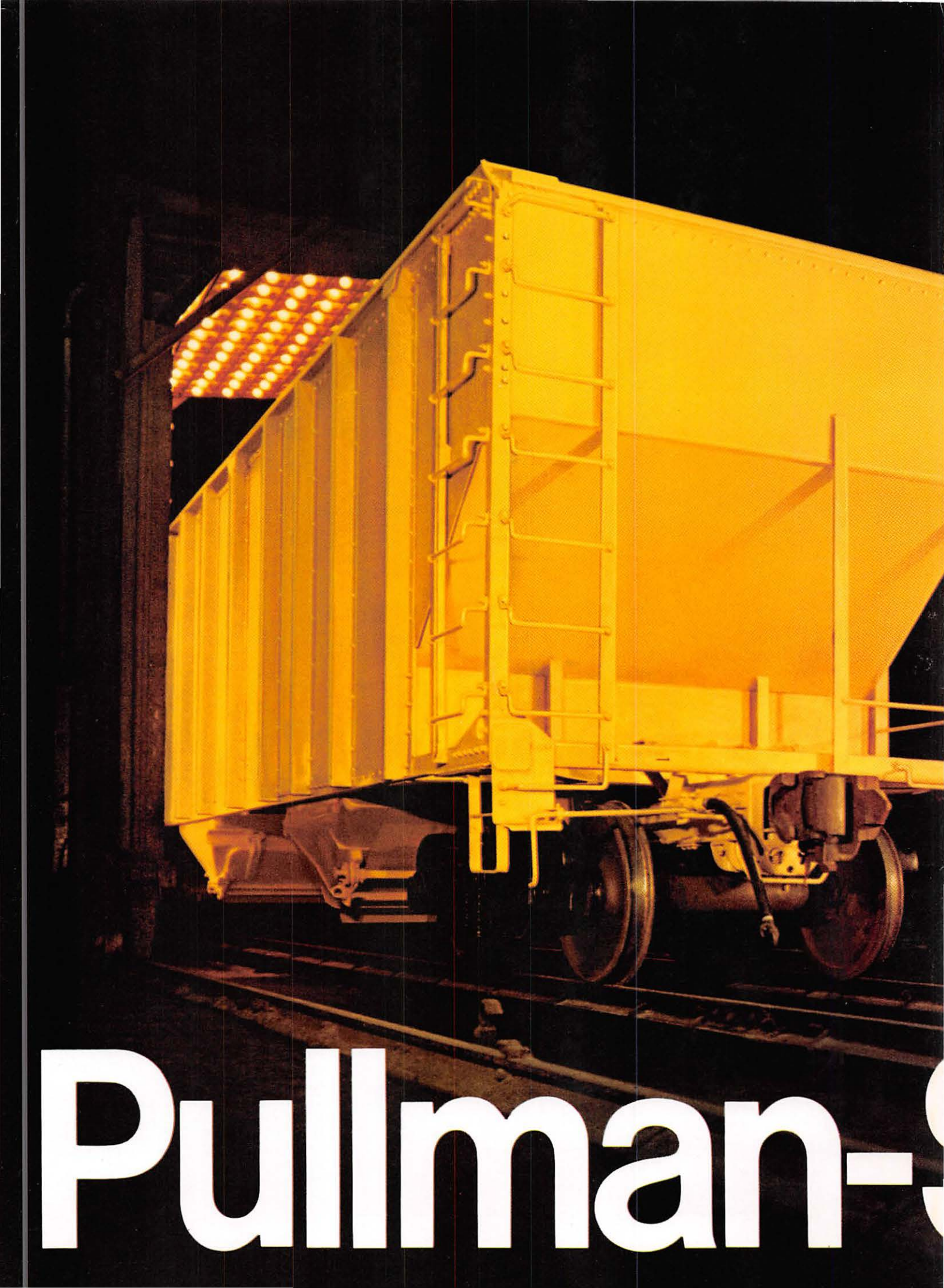
However the financing is worked out, USRA estimates that ConRail will need to lay as much as 1,650 track miles of rail (870 new and 780 second-hand), and 5.1 million new ties annually, USRA also identifies $100 million (1974 dollars) in deferred maintenance on existing communications and signal facilities, and $727 million in deferred maintenance on bridges and buildings.

● **Employees.** How will implementation of the plan affect employees of the affected carriers? USRA President Edward Jordan, addressing himself to this question at the Feb. 26 news conference, said, "There will not be any material reduction in the number of employees. In the first place, traffic is expected to increase. Also, a large number of people will be added to maintenance of way and maintenance of equipment jobs. So while there will be some shifting, there will not be much of a change in the total picture. Actually, 10 years out, we are expecting to have slightly more people on the job." He said the $250 million in employee protection provided in the RRR Act should be ample.

● **Timetable.** What happens next?

—First will come hearings, conducted by the ICC's Rail Services Planning Office (RSPO), on the Preliminary System Plan. The tentative schedule: March 17-21—Albany, N.Y.; Buffalo, N.Y.; Hartford, Conn.; Harrisburg, Pa.; Pittsburgh; Columbus, Ohio; Lansing, Mich.; Annapolis, Md.; Springfield, Ill. March 18-21—Boston. March 17-19—Montpelier, Vt.; Providence, R.I.; Salisbury, Md.; Washington, D.C.; Charlestown, W. Va.; Chicago. March 21—Green Bay, Wis. March 24-

(Continued on page 72)


Pullman-

First of a great new line.

This is the first of a brand new line of open tops, and part of a whole new family of open top hoppers and gondolas to serve America's rail transportation.

And the modern, new open top production line at our Butler, Pennsylvania, plant is now running, with a second one scheduled to open later this year at our Bessemer, Alabama, plant. That means not one, but *two* new production lines—with new dies, new jigs, and new quarter-mile long assembly tracks to take our new family of open top cars from design stage to delivery track on a continuous production basis.

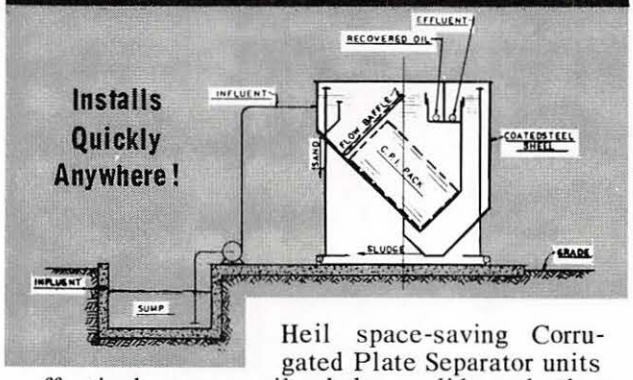
The all-new designs feature heavy-duty riveted sides, with wide, deep side posts riveted to copper-bearing steel sides by massive new 75-ton hydraulic yokes. And the full family line includes the widest variety of hoppers in a choice of sizes and discharge systems, as well as high side and mill type gondolas of 70 or 100 ton capacity.

All this—new models, new design, and new production facilities—makes Pullman-Standard the first-family in open tops, and your best source of rail cars to meet any unit train or open top need.

Pullman-Standard, a division of Pullman Incorporated, 200 South Michigan Avenue, Chicago, Illinois 60604.

Standard

CLEAN UP WASTE WATER



Heil space-saving Corrugated Plate Separator units effectively remove oil, sludge, solids and other debris from waste water . . . automatically. No moving parts! No tailing ponds needed! Unit designs for up to 90,000 gpm. Write for FREE Bulletin B-932.

FREE FILE FOLDER describes four, low operating cost systems. Write Heil Process Equipment Co., Division of Dart Industries Inc., 12901 Elmwood Ave., Cleveland, Ohio 44111. National Sales Office: 216-327-6051.

HE-234A

HEIL Corrugated Plate SEPARATORS

Circle 23 on Reader Service Card

Rapid Transit

Assistant General Manager

The Bay Area Rapid Transit District (BART) is recruiting an Assistant General Manager-Operations to direct, administer and coordinate its operating and maintenance activities. This challenging position requires a broad knowledge of and experience in the management of a major transportation operation. Transportation or related experience is desirable, and professional training leading to degrees in Engineering and Business or Public Administration is also desirable. Placement within a competitive salary range is commensurate with background and experience, and there is an attractive fringe benefit package. The closing date for this position is April 11, 1975. If you submitted a resume for this position, which was advertised in August, 1974, you do not need to respond; your resume will be reviewed. New applicants should send a resume and salary history - NO TELE PHONE CALLS PLEASE - to:

Director of Employee Relations

BAY AREA RAPID TRANSIT DISTRICT

800 Madison St., Oakland, California 94607

An equal opportunity employer

REQUEST FOR BIDS

Illinois Central Gulf Railroad Company requests sealed bids for purchase of the following items:

1. Inquiry number 75-MT-35825 covering:
   16 ea. Sets, Vapor MRN 74031-El, or equivalent Rev. "A" Remote Indicator Speedometer System. Must meet ICGRR specifications of speed indication system for railway commuter cars, GSCD 8-29-74, Item No. R-16.

2. Inquiry number 25-MT-64498 covering:
   129 pr. Marker Light Fixtures, Item No. R-15.

3. Inquiry number 47-MT-64492 covering:
   258 ea. Mirror, Plexiglas Convex, Model #SK-13P as furnished by Se-Kure Controls, Inc., or equivalent. Set on Masonite back with extruded plastic frame and clips-no hardware. Item No. R-5.

4. Inquiry number 25-MT-63279 covering:
   130 ea. General Electric #J.R.F.-1 or equivalent Inshot Relay Modification Kit. Item No. R-18.

5. Inquiry number 25-MT-64495:
   258 ea. Fan Blade Assemblies complete with taper lock shaft bushing and mounting screws. (Per Trane Co. Drawing 4522-5567, Rev. "A") or equivalent. Item No. R-10.

Bids must be submitted to, and specifications are available on request from: Manager of Purchases, Illinois Central Gulf Railroad Company, 233 North Michigan Avenue, Chicago, Illinois 60601, prior to 3:00 p.m., March 31, 1975, at which time and place said bids will be publicly opened. The Illinois Central Gulf Railroad Company reserves the right to reject any and all bids.

Purchase of these materials will be made with financial assistance provided by U.S. Department of Transportation, Urban Mass Transit Administration and Illinois Department of Transportation to Chicago South Suburban Mass Transit District, Projects IL-03-0007, and IL-03-0023 and CAP-72-011 Fed. Materials are exempt from federal exise and state use taxes. Bidders must give assurance of compliance with current federal and state regulations concerning equal employment opportunity and conflicts of interest pertinent to government purchase contracts.

Illinois Central Gulf Railroad Company

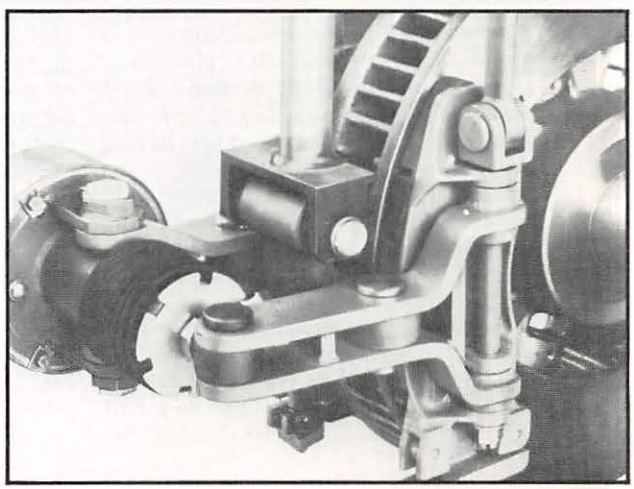
Its top speed also depends on its braking rate.

Silently, Smoothly, Knorr Discs are Designed to Safely Stop the Budd-Built Coaches which will operate at 120 miles per hour for Amtrak Service.

Knorr axle-mounted disc brakes are installed on special steel hubs, permanently pressed on the axle. The special wear-resistant cast iron disc is mounted to the hub by Knorr unique expansion bolts. Eventually, worn discs may be replaced by split friction discs without disassembling the trucks.

All disc brakes are not alike. Knorr has the experience-proven solution to stop high speed trains.

Let Knorr tell you more.



Axle-mounted brake disc.
An example of our products for rail vehicles.

Circle 14 on Reader Service Card

MEMBER RPI

KNORR BRAKE CORPORATION

P. O. Box 1905, Derwood Industrial Park, Rockville, Maryland 20850 U.S.A.
Telephone (301) 424-5500/Telex 898398

E7461a

Electrification: Is it going to happen?

By WILLIAM D. MIDDLETON
Railway Age Special Writer

There was once a time when the United States led the world in railroad electrification.

That's an observation that may be difficult to accept in today's world of dieselized U.S. railroading, but the truth of it is abundantly supported by the historical record.

The involvement of main line U.S. railroads in electrification goes back at least as far as 1881, when the Northern Pacific's Henry Villard backed some of Thomas Edison's early experiments with electric locomotives. The Baltimore & Ohio's 1895 electrification of the Howard Street tunnel at Baltimore was the world's first main line electrification. The New York Central's New York terminal electrification of 1906 was the first really large scale steam railroad electrification ever undertaken. The New Haven in 1907 opened what was then both the world's longest main line electrification and its first major single-phase A.C. installation.

● **30 years of progress.** For roughly three decades U.S. railroads maintained that early lead in the development of electrification technology and its application. U.S. electrification exceeded that of any other country, and as late as the early 1930's it constituted fully 20% of the world total.

Wherever it went in, electrification produced all the economies and benefits claimed by its advocates. Operating speeds and tonnage capacities were increased. Maintenance and operating costs were reduced. Electric motive power availability was much higher than that of the steam power it replaced, and its useful service life proved to be far longer. In many cases the savings produced by electrification were sufficient to repay its costs in as little as five years. One electrification—the Pennsylvania system's great eastern lines installation of the 1930's—is widely regarded as having been very nearly indispensable to the ability of U.S. railroads to successfully accommodate the enormous freight and passenger traffic of the World War II years. It is probably safe to say that no U.S. railroad management ever had cause to regret its decision to electrify.

● **And then, nothing.** All that is history. For despite its early success, American electrification came to a halt in 1938. With the arrival of Pennsylvania catenary at Harrisburg, Pa., U.S. electrification had peaked out with scarcely 7,000 track miles—about 2% of the U.S. total—under electric operation.

The reason for that abrupt ending to U.S. electrification is not hard to discern.

The great barrier to widespread electrification was simply its enormous capital cost. Distribution systems, even then, cost anywhere from $50,000 a mile to several times that amount. In addition to the costly distribution systems themselves, the D.C. or low-frequency A.C. systems that had to be used required special conversion equipment, and separate transmission lines. Entirely new motive power fleets had to be acquired.

Despite the high costs, electrification advanced at a brisk pace throughout the 1920's, when railroad traffic levels were high and earnings were good. The Great Depression quickly dried up the capital needed for electrification, and even the Pennsylvania was able to complete its massive eastern electrification only on the strength of RFC and PWA loans.

By the time the Depression was over and traffic began to pick up again, World War II intervened. After the war there were too many demands for maintenance deferred during the war and for new equipment to allow the financing that electrification required. In any case, dieselization offered an attractive alternative. Diesel-electrics, a self-contained form of electrification, afforded many of the operating efficiencies of electrification without its huge capital investment. Moreover, diesels permitted motive power modernization on a system-wide scale that would but seldom have been feasible with electrification.

● **Why electrify?** But even if U.S. electrification has languished in the face of these unfavorable circumstances, it has continued to offer an opportunity for significant operating efficiencies and economies, as compared to diesel-electric motive power. Some of the principal ones, as enumerated by long-time electrification proponent John W. Barringer, may be summarized as follows:

—By virtue of continuous access through the catenaries to all of the electric power that traction motors can use in the higher speed ranges, an electric locomotive can perform up to three times as much work in high speed heavy haulage as a diesel-electric of the same horsepower rating.

(Continued on page 34)

Who will be first

Ever since the late 1960's railroads have been looking at electrification with steadily growing interest. To date, at least 16 U.S. and Canadian roads have been involved in electrification studies, or at least have been seriously considering the advantages of electrification. But of that number, scarcely a half dozen can be considered serious candidates for an early start to electrification. Not surprisingly, almost all of them are located in the West and South, where traffic growth is greatest and earnings are relatively good.

Here's the lineup of the most likely candidates:

Burlington Northern has been looking hard at electrification for over two years. Sitting astride massive deposits of low-sulfur coal, BN looks forward to a long-term traffic bonanza as U.S. power generation plants shift to increasing reliance on coal fuel; the railroad has projected that it will be handling 65 unit coal trains weekly by the end of 1975, and over 120 a week by 1978. The routes in Wyoming and Nebraska that will carry the bulk of this increasing tonnage are single track lines ideally suited to electrification. Overhead clearance problems are at a minimum, and most of the lines lack CTC or automatic block signals, thus avoiding the costly changes to these systems that would otherwise be required; instead, compatible signals—needed now in any case—can be installed simultaneous with electrification. Originally, BN, together with GE, studied electrification feasibility for some 1200 miles of line, including the route between Billings, Mont., and Lincoln, Neb., plus a loop over BN's new 116-mile line from Gillette to Douglas, Wyo., and thence to Northport and Alliance, Neb. That study, completed last year, indicated that BN could reduce its annual energy costs on these lines by 34% through electrification. More recently, BN has limited its studies to the 360-mile segment between Alliance and Lincoln, Neb. Electrification at 50 kV is being studied, and the use of 6000-hp, 8000-hp, and 10,000-hp electric locomotives has been analyzed. Although an economic analysis is not yet complete, preliminary estimates place the cost of electrification in the range of $80,000 to $100,000 per mile. "There are many variables that require further analysis before we can come to a final decision," says BN Vice Chairman and Chief Operating Officer Robert W. Downing. "The uncertainty of the money market,

under the wire? Here are the candidates

general economic situation in the country, fuel and material prices are particularly sensitive items," says Downing, but, "the large initial capital investment required for railroad electrification may well be the deciding factor for Burlington Northern."

Union Pacific, too, has been looking hard at electrification for more than two years. Feasibility studies have been made for 50 kV electrification of some 2250 track-miles on the routes from North Platte, Neb., to Salt Lake City, Utah, and Pocatello, Ida. In estimates released over a year ago UP placed the cost of catenary for such an installation at about $158 million (about $70,000 per track-mile), with an additional $92 million needed to make communications and signalling compatible with electrification. Design and construction time for such a project was estimated to be about four years. Two half-mile test

TEST CATENARY rises at LaGrange, Ill., where EMD is building prototypes.

installations completed last year are giving UP some first hand experience with different catenary systems and some of those communications-signalling interference problems. A section near Farmington, Utah, is testing a European type catenary (supplied by Electrack) in an environment where wind velocities reach or exceed 100 mph. Wood, steel, and concrete poles are being tested, and the catenary has been energized at 60 Hz 50 kV to determine the effects on UP's signalling and both railroad and commercial communication systems. A second, non-energized section near Emkay, Wyo., on Sherman Hill, is testing a U.S.-supplied catenary system at a location where both high winds and extreme winter weather conditions are encountered. Ohio Brass, which also supplied materials for the Emkay test catenary, has recently designed for UP an interesting double wire catenary system which would use separate positive and negative wires and two locomotive pantographs, obviating the need for a rail return circuit. Such a system is being considered by UP as a possibly more economic means of eliminating the interference problems that would result from a rail return circuit. The idea, of course, is not new; Cincinnati trolleys adopted a double wire overhead to avoid telephone interference problems more than 75 years ago.

Illinois Central Gulf has carried out feasibility studies and an economic analysis of an electrification of the Chicago-New Orleans main line and some of its principal branches. Like almost every road currently looking at electrification, ICG considered a 50 kV system. Electric locomotives of between 6000 and 8000 continuous horsepower could be most effectively utilized on ICG, according to the studies. ICG's Chicago-Memphis line, and branches to East St. Louis, Ill., Paducah, Ky., and Jackson, Tenn., showed what Richard Cogswell, former manager of research and planning in ICG's Mechanical Department and now with DOT, termed "a surprisingly high return on investment in favor of electrification." Contributing to electrification's favorable prospects on ICG, according to Cogswell, were particularly good catenary construction conditions, resulting in an estimated catenary cost of only $55,000 per track mile. ICG's long tangent sections of track, few sharp curves requiring closer spacing of catenary supports, minimal bridge and tunnel clearance problems, and generally good site and accessibility conditions for construction were among the favorable conditions cited by Cogswell as contributing to the low construction cost estimates.

Southern, together with GE, local power companies, and TVA began electrification studies several years ago for the 338-mile Cincinnati-Chattanooga route, Southern's most heavily trafficked line. Subsequently, another 153 miles of line between Chattanooga and Atlanta were added to the study scope. Southern now has commitments from TVA and three other utility companies that they can supply the necessary power, if and when Southern electrifies. Although completion of the current studies is still a year-and-a-half to two years away, on the basis of preliminary evaluation, at least, there's a good likelihood that SR will give serious consideration to electrifying between Cincinnati and Chattanooga. "The outlook is good at this stage," said Southern President W. Graham Claytor, Jr. at a recent meeting with security analysts.

Southern Pacific was one of the first roads to begin the current cycle of serious electrification studies. SP selected the 760-mile El Paso-Colton route—one of several potential SP electrification projects—for a detailed technical feasibility study carried out jointly with Southern California Edison in 1970. The route was considered a prime electrification candidate for a number of reasons, among them its extremely high traffic density on a largely single track line, high operating speed requirements, and the constraints of the severe Beaumont Hill grades east of Colton. The study concluded that electrification was technically feasible, and recommended a 50 kV system. The operation of 7000-ton trains with two 8000-hp locomotives, with the addition of a third over Beaumont Hill, suggested the studies would permit optimum use of the line's physical plant by running all classes of trains at virtually the same speeds, as well as substantially increasing operating speeds over the limiting Beaumont Hill grades. Although electrification looked good technically in that 1970 study, subsequent activity by SP has been confined largely to keeping abreast of technical developments, and thus far the railroad has given consideration of electrification a lower priority than other needed capital improvements. But rising diesel fuel costs and steady traffic growth on SP's largely single track system could well lead to a reordering of these priorities in the next few years.

Canadian Pacific, impelled by a heavy—and growing—tonnage of export coal moving between Crowsnest region mines and Vancouver, B.C., began electrification studies almost five years ago for some 850 miles of line in the Canadian Rockies that included the main line between Calgary, Alta., and Vancouver, B.C., as well as the secondary main line from Golden to Sparwood, B.C. By 1980 CP projects an annual traffic on its single track route through the Rockies of anywhere from 35 million to 45 million gross tons, with 30 trains a day moving through the Connaught Tunnel. The results of CP's initial look were favorable, and the railroad has continued its electrification studies. In early 1971 CP engineers

(Continued on page 32)

Put our know-how to the test.

It stands to reason. If a sales representative has a first-hand working knowledge of your vegetation problems, he can do a far better job of helping you solve them.

Ciba-Geigy men have this first-hand knowledge. The reason is Test track. A program that puts our men out in the field conducting roadbed tests all across the country. So far, they have conducted over 3,000 of these tests, covering every major railroad system.

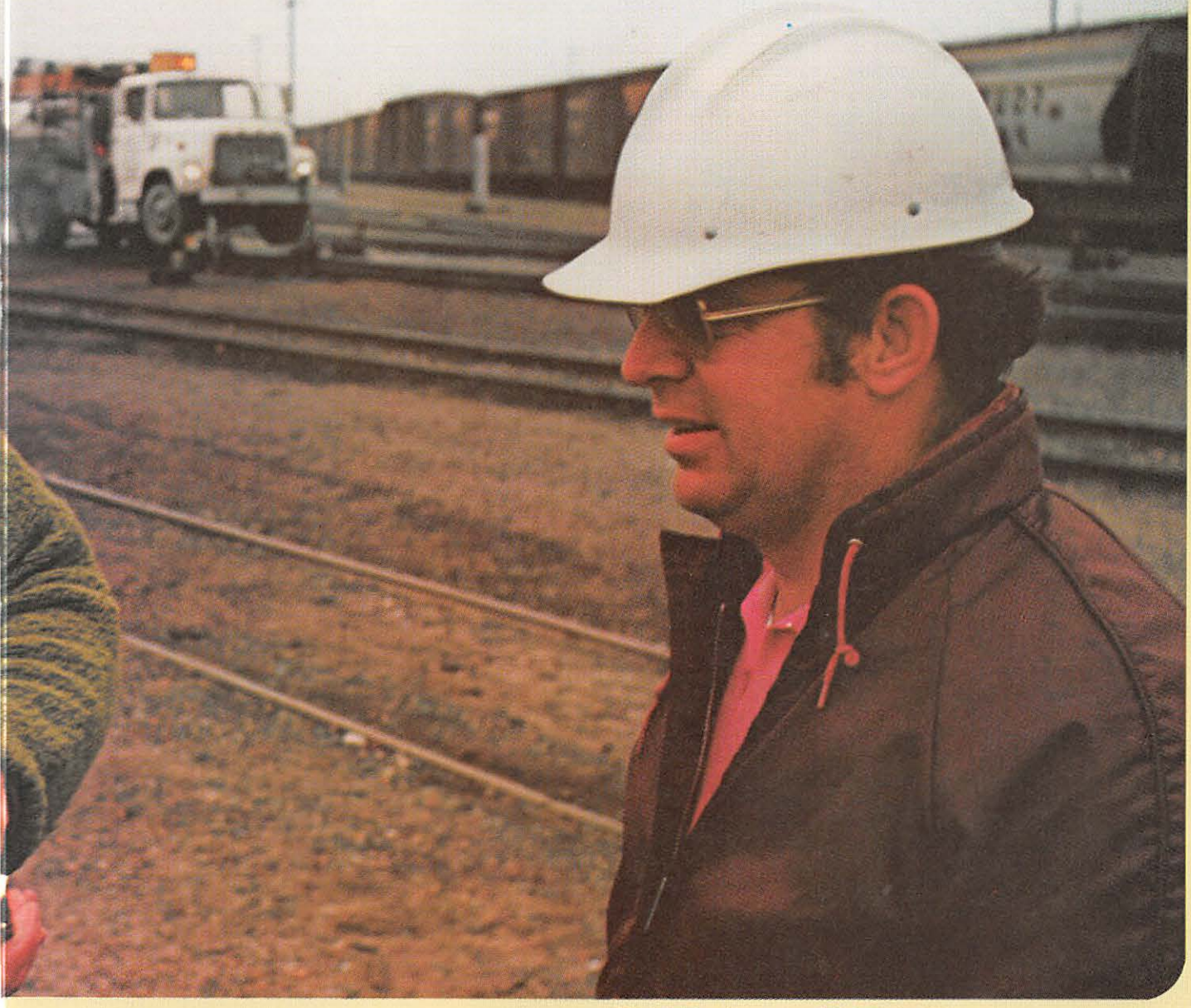
Extensive, on-the-job experience, under conditions like yours, gives Ciba-Geigy men the experience to design a weed control program that fits the specific needs of your railroad. A program that's safe, economical, effective.

Discover what our Test track know-how can do for you. Put it to the test. Write or call Pete Nicas (919) 292-7100 for the Ciba-Geigy railroad specialist nearest you. And if you need assistance, we'll even help you locate a reliable contract applicator.

CIBA-GEIGY Corporation, Industrial Herbicide Sales Department, P.O. Box 11422, Greensboro, NC 27409.

Test track is a service mark of Ciba-Geigy.

Circle 42 on Reader Service Card



CIBA–GEIGY

The big, unanswered question in electrification studies:

carried out a series of tests in Norway with a 5000-hp ASEA thyristor locomotive leased from the Swedish State Railways. Late in 1972 CP erected a quarter-mile test section of catenary at Ross Peak, B.C., to study cost and difficulty of erection, and to gain maintenance experience under severe weather conditions. CP's projected 850-mile electrification would take five years to construct, and its cost has been estimated at $200 million to $250 million. For CP, as for other roads considering electrification, that sizeable capital investment requirement must compete for priority with a host of other improvement needs.

Penn Central, despite bankruptcy, must be included on any list of likely candidates for major new electrification activity. Under a contract with FRA, the Bechtel Corp. is presently completing a study of the upgrading of PC's existing Washington-New Haven 25 Hz 11 kV installation to 60 Hz 25 kV (60 Hz 12 kV between New York and New Haven), extension of 25 kV electrification to Boston, and upgrading of the entire Washington-Boston corridor for 150 mph high speed passenger service. Before the 1970 bankruptcy PC was studying both the conversion of the existing 11 kV system and new extrensions of electrification. A prime candidate for electrification following the PRR-NYC merger was the largely single track route up the west shore of the Hudson River between Newark and Selkirk Yard, near Albany, which became a major link for New England traffic in the post-merger reordering of traffic patterns. Projects of this kind, and perhaps even the New Haven-Boston extension as well, will doubtless have to wait a few years until the shape of the new ConRail system and its traffic patterns become evident. Conversion of the existing PC electrification will constitute a sizeable new equipment market. The most recent electric motive power operating on PC is equipped for either 25 Hz 11 kV or 60 Hz 25 kV operation, while earlier rectifier power such as the 66 E44 locomotives delivered from 1960 to 1963 and some M.U. cars, will require transformer and auxiliary motor changes. But PC's remaining "red electric" M.U.'s and more than 100 GG1 locomotives must be replaced by new motive power before conversion can take place. A freight version of the GE E60CP units now being delivered to Amtrak, as well as the two EMD demonstrator units soon to go into service on PC, will be contenders for that sizeable GG1 replacement market.

Conversions or extensions to the other existing eastern electrifications should also present a modest electrification market during the next few years. Like PC, Reading must eventually convert its 25 Hz 11 kV system to 60 Hz 25 kV; studies for a conversion of Reading's Norristown Branch were recently completed. Conversion of Erie Lackawanna's 3kV dc suburban electrification to a 60 Hz 12.5 kV system, as well as a 10-mile extension to Netcong, N.J., is presently under design by Gibbs & Hill. UMTA and the State of New Jersey will jointly finance the work. A second State of New Jersey project now under design will install 35 miles of single phase 60 Hz electrification over the New York & Long Branch from South Amboy to Red Bank. Across the Hudson, New York's MTA is planning extensions of dc third rail to Ronkonkoma and Port Jefferson on LIRR, and to Peekskill and Brewster on PC.

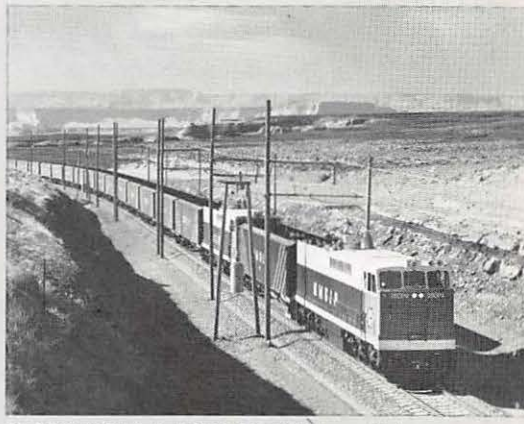
After preliminary studies a few roads have determined that electrification isn't warranted for their particular operating conditions, at least for now.

Duluth, Missabe & Iron Range studied a 75-mile electrification between Duluth and Minntac in 1970, but concluded that it was not economically feasible at that time. **Missouri Pacific** recently studied the 50 kV electrification of its 493-mile main line between St. Louis and Texarkana, but found that there was not sufficient traffic to justify the high cost.

At least a half dozen other roads have recently looked at electrification with more than passing interest, but for most of them the situation is pretty much "wait and see."

Two non-common carrier coal railroads opened in the past five years have provided significant working U.S. examples of electrification's new commercial frequency technology. The first of these was the Muskingum Electric Railroad, built by the American Electric Power Co. at its Muskingum Mine in southeastern Ohio. Opened in 1968, the ME employs 5000-hp thyristor-controlled rectifier locomotives operating from a 60 Hz 25 kV system. The more recently opened (in late 1973), 78-mile Black Mesa & Lake Powell Railroad, which hauls coal between the Black Mesa mine and the Navajo Generating Station in northern Arizona, employs the 60 Hz 50 kV system that is generally regarded as the most likely choice for future electrifications of western or southern railroads.

Two brand new 60 Hz 25 kV electric railroads for Texas Utilities Services, Inc., are now on the drawing boards at Gibbs & Hill. The first will be an 11-mile, single track lignite hauler for TUSI's Martin Lake Electric Station near Tatum. The second will be a similar 10-mile line for the utility company's Monticello Electric Station near Mount Pleasant. Both will later be extended by another 10 miles as lignite demand increases.



BLACK MESA & LAKE POWELL could be a model for future electrifications.

Two important studies of recent years have looked at U.S. electrification feasibility on a broad basis.

The Edison Electric Institute, a utility industry association, carried out a study during the late 1960's of the technical and economic feasibility of railroad electrification, using the high-traffic density New York Central main line between Harmon, N.Y., and Cleveland, Ohio, as a model. The EEI report, issued in 1970, concluded that there were no serious technical obstacles to commercial frequency electrification and endorsed electrification of high-density railroad corridors as advantageous to the railroads and as a desirable new market for utility companies. Included in the report were a number of important guidelines concerning the engineering and technical, and rate and financial aspects of any consideration of electrification. Among the EEI's conclusions were these:

—About 22,000 track-miles of U.S. railroads carried a traffic density sufficient to make electrification economically feasible.

—This economically feasible electrification represented a potential new utility company gross market of 3000 megawatts. The estimated annual market was about 13 billion kwhr at the end of 1969, rising to almost 18 billion kwhr in 1975. Future power sales could approach an annual market of 20 to 25 billion kwhr, making railroad electrification a market that utility companies could look upon not only as a

stable source of sales and revenue but also as one with "very encouraging" growth potential.

—In many cases the quality of the electrification market was found to be as attractive as its quantity. For the Harmon-Cleveland model the EEI study projected an annual system load factor of 74% based on a 30-minute demand interval; this was as good as, or better than, most industrial customers. Moreover, the railroad's peak demands generally did not coincide with those of the electric utilities.

The Federal Railroad Administration early in 1974 issued a brief but noteworthy report on electrification. Developed by a Government-Industry Task Force on Railroad Electrification, the report reviewed some of the historical, traffic, operating, financial, energy, and environmental factors influencing further development of U.S. electrification, and suggested some important areas where further research and development is needed. Among its conclusions the Task Group found that, "railroad electrification is the only available alternative to diesel-electric operations on high-density, long-haul railroad lines," and it "offers the only feasible means to utilize coal or nuclear power for intercity movements of general freight and passengers." Three major recommendations by the Task Group:

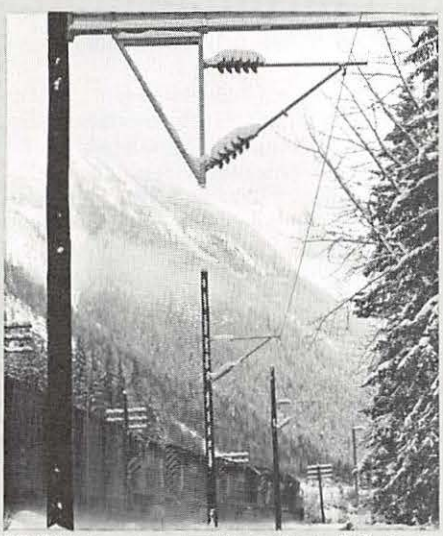
—DOT should have planning and funding authority to cooperate with industry in the development and financing of electrification where substantial improvements in national transportation efficiency can be achieved.

—DOT should undertake with industry a cooperative research and development program in electrification technology.

—Railroad improvement legislation should permit assistance for electrification projects where substantial improvements in transportation efficiency can be demonstrated.

General Electric, which got in on electrification's "ground floor" by equipping B&O's pioneer 1895 installation, has been an unflagging electrification proponent ever since. Although Westinghouse Electric was once a major competitor in the heavy electrification market, GE has had the field to itself for almost a quarter century. And with the exception of a pair of two-unit rectifier demonstrators built for the Pennsylvania by Westinghouse in 1951, which turned out to be that builder's final electric locomotive production, GE has produced every major rectifier locomotive ever built in the U.S. Beginning with ten ignitron rectifier units built for the New Haven in 1955, GE has built more than a hundred rectifier units for both existing U.S. electrifications and such new commercial frequency installations as the Muskingum Electric and the Black Mesa & Lake Powell. Current GE electric locomotive capability is exemplified by the thyristor-controlled, 6000-hp, C-C E60C model, which has been delivered to Black Mesa & Lake Powell as a heavy freight unit and to Amtrak as a 120 mph passenger unit.

GM's **Electro-Motive Division,** however, has challenged GE's long dominance of the U.S. electrification market. In a significant break with its historical specialization in internal combustion motive power, EMD in 1972 signed a non-exclusive licensing agreement with the Swedish electrical equipment manufacturer Allmanna Svenska Elektriska Ab (ASEA) covering ASEA's patents and extensive experience in modern thyristor-controlled locomotives. EMD is currently completing a 60 Hz 50 kV test track at its La Grange, Ill., plant, and in late April or early May will roll out the first of two electric demonstrators now under construction. The initial GM6C locomotive will be a 6000-hp (diesel equivalent) C-C road freight unit in a road switcher configuration. Both trucks and the axle-hung traction motors will be standard EMD components, while most of the above-deck electrical equipment will be supplied by ASEA. The second demonstrator, scheduled for early 1976 delivery, will be a GM10B unit rated at 10,000-hp, with six truck-frame-mounted ASEA traction motors mounted on three four-wheel trucks of ASEA design. Trucks, as well as the road switcher carbody, will be built at EMD. Both units will have separately excited traction motors and a full-range thyristor control. Both are equipped for 25 Hz 11 kV, as well as 60 Hz 50 kV, operation, and will be operated in an extensive testing program on Penn Central's electrification.



CP RAIL's catenary at Ross Peak, B.C., is accumulating maintenance data.

Ohio Brass Co., a long-time supplier to the electrification market, is a major potential supplier of catenary systems for any new electrifications. OB capabilities include the provision of hardware, brackets, clips, insulators, and the like — everything but poles and wire — for either constant tension or weight-tensioned catenary systems, including design and construction drawings. The firm has supplied electrification study material for several roads, including BN and UP, and has acquired significant experience in the construction of modern overhead systems with an experimental, mile-long section of 25 kV weight-tensioned catenary on Ohio's Muskingum Electric, the entire 78-mile 50 kV installation for Black Mesa & Lake Powell, and Union Pacific's experimental catenary section west of Cheyenne, Wyoming. OB is also supplying catenary materials for Texas Utilities Services' two new 25 kV Texas lignite roads.

Electrack Inc., a newcomer to U.S. electrification, is jointly owned by General Cable and British Insulated Callender's Construction Co. (BICC), and offers the design and construction of not only catenary systems, but of complete electrification projects on a "turnkey" basis. The firm takes advantage of BICC's extensive worldwide experience in the construction of complete modern catenary systems, and promises to be a tough competitor to old-line Ohio Brass in any new market for catenary systems. Thus far Electrack has participated in electrification studies for SP, BN, and CP. Actual Electrack installations include 50 kV test sections for both CP and UP, a 3-1/2-mile 50 kV test system at GE's Erie, Pa., test track, and the similar installation now being constructed at EMD's La Grange, Ill., test track.

The Anaconda Company, with hundreds of miles of its trolley wire still in service on electrified lines in the U.S. (the longest is 2,500 track miles on the Penn Central; the newest is 78 miles on the Black Mesa & Lake Powell), is totally committed to a continuing improvement of the technology of trolley wire, messenger, and shielding of communications and signal cables, according to an Anaconda spokesman.

EMD's GM6C will be the first of two electric demonstrators to roll out of LaGrange, Ill., plant this year. It's a 6000-hp (diesel equivalent) unit in a road switcher configuration. It will be followed in early '76 by the GM10B, rated at 10,000 hp pictured in drawing above.

(Continued from page 28)

—Because of diversity in power demand, electrification requires an installed central station generator capacity equal to less than 25% of total electric locomotive horsepower, while each diesel-electric requires a generating capacity sufficient to meet the full power requirements of the continuous rating of its traction motors.

—Because electric locomotives lack high-wear components such as the reciprocating engines of diesel-electrics, their useful life promises to exceed that of diesels by factors of two or three, with consequent advantages in comparative depreciation charges.

—Lubricant and maintenance costs for electric power are only a fourth to a third as much as those for diesel-electric power, and the reduced maintenance requirements of electrics increases their availability by at least 10% as compared to diesel-electrics.

These and other advantages of electric motive power can only be attained, of course, through the substantial fixed plant investment required for electrification, and only under conditions of extremely high traffic density will that investment prove feasible.

● **Costs come down.** But over the past 25 years substantial advancement in electrification technology has served to significantly reduce the potential cost of electrification.

The development of rectifier motive power in the late 1940's permitted A.C. electrification at commercial frequencies directly from the utility companies' power grid, eliminating the need for both costly power conversion equipment and special transmission lines. The development of higher voltage electrification, first at 25 kV and more recently at 50 kV, has reduced the distribution system conductor requirements and, together with modern lightweight catenary designs, has substantially reduced the cost of distribution systems. It is these developments which have contributed in large measure to the substantial growth in railroad electrification elsewhere around the world over the past 25 years.

The more recent development of solid state rectifiers and thyristor controls has greatly increased the efficiency of modern electric motive power, while the mass production techniques that diesel-electric builders have successfully applied to the manufacture of railroad motive power have developed rugged, efficient, low cost traction motors, trucks, drive systems, controls, and other components that are equally applicable to electric locomotives.

While an improving technology has been reducing the potential cost of electrification, changing railroad traffic conditions have substantially broadened the circumstances under which electrification becomes desirable and feasible.

The growing market for TOFC/COFC and other fast freight services has created a demand for high horsepower, high speed motive power that electrification is uniquely well equipped to provide.

At the same time, long-term traffic growth has significantly increased the railroad mileage for which electrification is potentially feasible. In the decade from 1963 to 1973 U.S. rail freight traffic increased by almost 37% to a record level of 852 billion ton-miles. But in the West and South, where the density of main trunk lines is generally much lower than in other regions of the U.S., the ten-year growth rate has been a much steeper 55%.

A 1970 electrification study by the Edison Electric Institute estimated that about 22,000 track-miles of the U.S. system carried a traffic density sufficient to warrant electrification, but even this may well prove to be a conservative figure. Some forecasts predict a total U.S. rail freight demand of as much as 1380 billion ton-miles annually by 1980, and 1600 billion ton-miles—double the 1973 level—by 1990.

● **The energy question.** These considerations have been evident for some years, but today they are converging with the problems and opportunities presented by the critical long-term crisis of energy supply and cost in a way that makes railroad electrification a more immediate prospect than it has been for many years.

For railroads the most immediate effect of the 1973-1974 oil embargo and the subsequent crude oil price increases by the oil exporting nations has been a drastic increase in the cost of diesel fuel—nearly 200% in only two years—after several decades of relative price stability. Current administration programs to curb oil consumption through new import fees and deregulation of the price of domestic oil will, of course, only further aggravate this escalation in diesel fuel costs. The long-term prospects are no more encouraging.

While no energy source can be considered immune to significant price escalation in the years ahead, electric power, because it is not tied to any particular fuel source, promises at least relative price stability in comparison with oil fuels. One view of the potential magnitude of this disparity in price escalation is provided by guidelines recently established by the U.S. Navy for long-range economic analysis of energy conservation projects. Energy costs, according to the Navy projections, are expected to increase at a rate of 9% annually for oil fuels, compared to a rate of only 3% for electric power. Thus, electrification has already gained a significant fuel cost advantage over diesel traction, and the margin is likely to be a steadily increasing one.

The Ford administration's energy strategy is aimed at a 2 million barrels per day reduction in oil imports by the end of 1977, and a long-term shift away

(Continued on page 37)

We're steelmen. For railroad men.

When it comes to rail products we know what you want. Our very first heat of steel, almost a century ago, was rolled into rail. And we've been producing rail ever since.

That's why we're very particular when it comes to turning out rail products—we have to satisfy both the steelmen and railmen in us. It's your assurance of quality when you use our rail and accessories.

For the future, to make sure we can meet the requirements for higher tonnage and speeds, we're continually researching to improve our products' performance.

Quality rail products—from steelmen who think like railroad men.

You'll find our brand all over the West.

CF&I Steel Corporation
Pueblo, Colorado
A subsidiary of Crane Co.

Time was when a little

To meet today's braking system needs, we've combined mass-transit technologies an ocean apart.

Because getting people from one place to another, swiftly and safely, is a staggering job today, you need all the railroad and mass-transit technology you can get.

And without getting the runaround.

New York Air Brake and Bergische-Stahl Industries of Germany have pooled their braking

We're steelmen. For railroad men.

When it comes to rail products we know what you want. Our very first heat of steel, almost a century ago, was rolled into rail. And we've been producing rail ever since.

That's why we're very particular when it comes to turning out rail products—we have to satisfy both the steelmen and railmen in us. It's your assurance of quality when you use our rail and accessories.

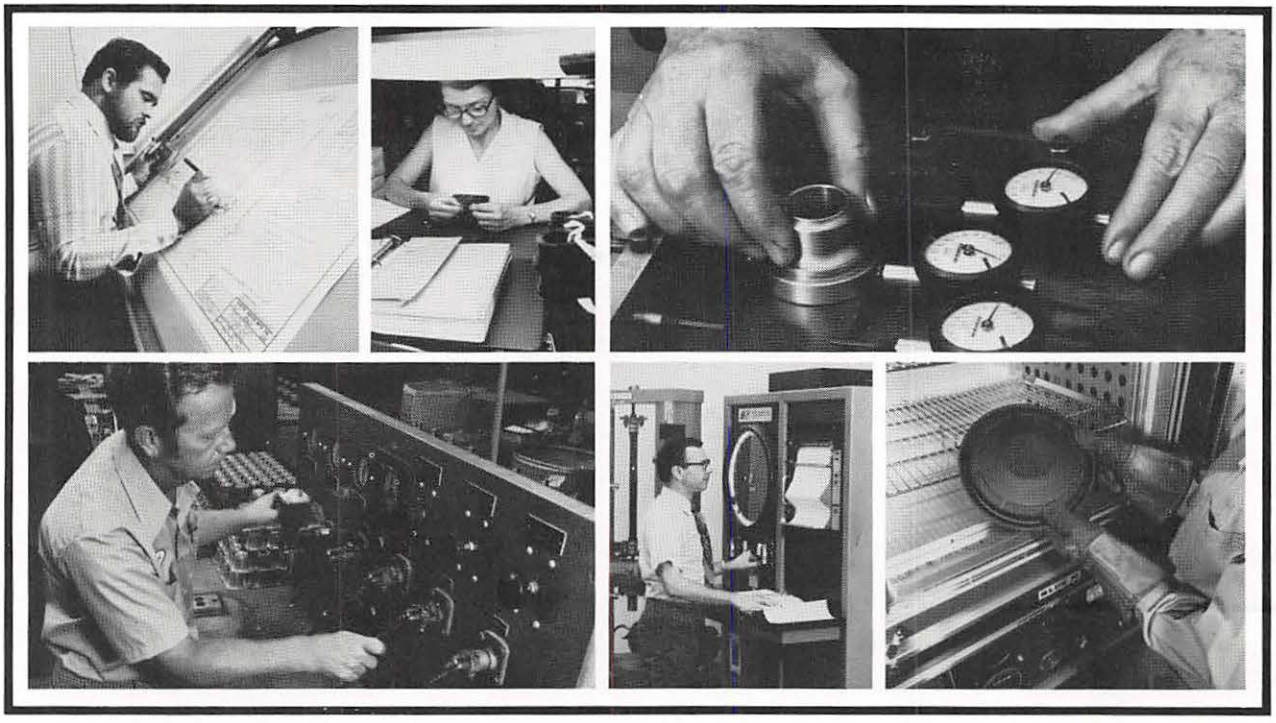
For the future, to make sure we can meet the requirements for higher tonnage and speeds, we're continually researching to improve our products' performance.

Quality rail products—from steelmen who think like railroad men.

You'll find our brand all over the West.

CF&I Steel Corporation
Pueblo, Colorado
A subsidiary of Crane Co.

The G-B reputation for reliability.



It's taken years of performance to establish. And we're constantly testing to maintain it.

Your new freight car and refurbishing programs
can only be as good as the components that go into them.

For over 75 years, railroads have been counting on Gustin-Bacon
for reliable quality products...
air brake valve repair parts
butt weld, socket weld and deep socket weld fittings
special flange fitting assemblies
brake cylinder release valves
Locktite® cotter pins
journal box rear seals and dust plugs
cast iron pistons for locomotives

Reliability all the way down the line. That's what you get with Gustin-Bacon railroad products.

Write or phone: Aeroquip Corporation, Gustin-Bacon Division, P.O. Box 366, Lawrence, Ks. 66044, (913) 841-4000, a subsidiary of LOF.

Aeroquip
GUSTIN-BACON DIVISION

44587R

Circle 15 on Reader Service Card

(Continued from page 34)

from dependence on oil fuels. Central to any such effort must be a significant change in transportation energy use and sources. For while transportation consumes only about 25% of total U.S. energy, transportation energy is derived almost exclusively from oil, and it accounts for over half of the total U.S. oil consumption.

Both the needs of this new national energy policy and the increasing cost of motor fuel can be expected to redirect an increasing share of freight traffic from highway carriers to the more energy efficient railroads; most estimates place the energy efficiency of rail transportation at about four times that of highway carriers. In a recent analysis of future transportation requirements, Richard A. Rice, professor of transportation at Carnegie-Mellon University, suggests that the U.S. can achieve a needed doubling of transportation output over the next 25 years without any increase in fuel consumption, largely through a shift to much greater dependence on rail transport. Any shift to rail haulage of this magnitude would clearly further widen the circumstances under which electrification becomes feasible.

But railroad electrification may well serve the new national energy policy in a much more direct way. For, within the limitations of presently available technology at least, railroad electrification offers the only available opportunity to convert a significant share of transportation requirements from oil to coal, nuclear, or hydro energy sources. The magnitude of the economically feasible conversion is suggested by the 1970 Edison Electric Institute study. The EEI estimated that the 22,000 track-miles for which electrification appeared feasible constituted a potential electrical energy market for 20 to 25 billion kwhr annually, a transportation energy usage equivalent to approximately 85 to 105 million barrels of oil each year if provided by diesel traction.

GENERAL ELECTRIC is building 26 E60CP units, rated at 10,000 hp and capable of 120 mph speeds, for Amtrak Northeast Corridor service.

• **Who will pay—and how?** While the desirability—and the need—for significant new U.S. railroad electrification may be increasingly clear, its serious consideration by railroads may very well founder, as it so often has in the past, on the industry's inability to secure the vast amount of investment capital that electrification requires. Yet, simultaneously with the growing urgency for the benefits that electrification can provide for the industry and the nation, changing governmental attitudes and an evolving national transportation policy are creating conditions more favorable to the solution of the financing question that at any time in close to a half century.

Where railroads were once expected to fend for themselves in the private capital market, in recent years the idea of governmental financial support to underwrite rail services deemed to be in the public interest has become increasingly acceptable. Thus governmental support of rail commuter services has become almost universal. The Federal legislation that created Amtrak to assume the burden of intercity passenger services, and the Regional Rail Reorganization Act of 1973 that will create the new Consolidated Rail Corp. from the eastern bankrupts, are other notable examples of this new attitude.

Thus far, legislation that would assist in the financing of electrification, or other needed capital improvements, has not gone on the books. But the Surface Transportation Act of 1974, which would have provided up to $2 billion in guaranteed loans for railroad improvements, and which only narrowly missed passage, would have been a sizeable beginning. Certainly the new recognition of the importance of a strengthened rail transport system, together with the growing awareness of the need to shift energy use to non-oil sources, as matters in the public interest, make it increasingly probable that some such legislation will become a reality in 1975.

• **"A rare opportunity."** Despite the high level of current interest in electrification, no one can say with any certainty at this juncture that significant new electrification will actually take place. Representing, as it does, a very fundamental change in the way railroads are operated, as well as an extremely costly, long-term commitment, a decision for electrification can be an extraordinary difficult one for railroad management. Government, too, must act boldly to create conditions under which the necessary investment can be financed. But in their consideration of electrification, railroad management and government are confronted with a rare opportunity to simultaneously advance the productivity of the nation's rail system and the national interest. If they are able to bring it off, American railroading may be on the verge of a new era of enhanced efficiency and productivity through electrification that could well approach that produced by the conversion to diesel-electric motive power a quarter century ago. ■

Time was when a little

To meet today's braking system needs, we've combined mass-transit technologies an ocean apart.

Because getting people from one place to another, swiftly and safely, is a staggering job today, you need all the railroad and mass-transit technology you can get.

And without getting the runaround.

New York Air Brake and Bergische-Stahl Industries of Germany have pooled their braking

technology would do it.

systems expertise to bring you the best of both worlds.

Europe's advanced technology in couplers, disc and track brakes, together with the controls capabilities of New York Air Brake Company in the United States.

The partnership gives NYAB an exclusive license to market BSI products in North America, and provides you with a reliable single source for complete braking systems. Now, all the device-to-device interface problems can be worked out by a single supplier.

So before you put on the brakes, come to the right source. We've got the systems. Advanced braking systems that speed up mass transit by slowing it down faster. What's more, we have, with BSI, the track record to prove it. Make us. Call or write

NEW YORK AIR BRAKE
A UNIT OF GENERAL SIGNAL
Watertown, N.Y. 13601

Circle 16 on Reader Service Card

READING AND PENN CENTRAL commuter trains carry 118,000 SEPTA passengers a day under purchase-of-service contracts.

Transit: SEPTA shows the way

By KENNETH G. ELLSWORTH
Associate Editor

"Our greatest asset is what we have in the ground right now—rail right of way," says James C. McConnon, chairman of the Southeastern Pennsylvania Transportation Authority. "This was to the advantage of taxpayers right from the beginning when we were able to include a substantial steel rail system of commuter and trolley lines in the $54 million paid for the entire SEPTA system."

Warming to the concept and achievements of SEPTA, in which he has been involved since its first organizational meeting in January 1964, McConnon points to the financial problems faced by some cities which have abandoned rail transportation for autos: "The cost of going back into rapid transit can be high. The cost of rights of way is estimated to be over $1 billion for a Los Angeles system. And BART certainly met costs in this area. But Philadelphia has an extensive number of rail lines built largely for freight purposes. A few are nearly abandoned or only lightly used. The potential in their utilization to improve rapid transit for SEPTA riders is very great indeed."

Thinking of tomorrow's needs in terms of what can be done today to improve public transportation for the 4 million people served by SEPTA is characteristic of McConnon's leadership. He was appointed vice chairman of the board in 1964 and has been chairman since 1966. A senior partner of a nationally known patent law firm, Paul & Paul, McConnon specializes in patents for the textile, steel and aluminum industries, and travels as trial attorney on patent cases before the courts. He still finds time to spend 16 to 20 hours a week on SEPTA business.

"The urban cloverleaf, our new national flower, has become an all-consuming weed."

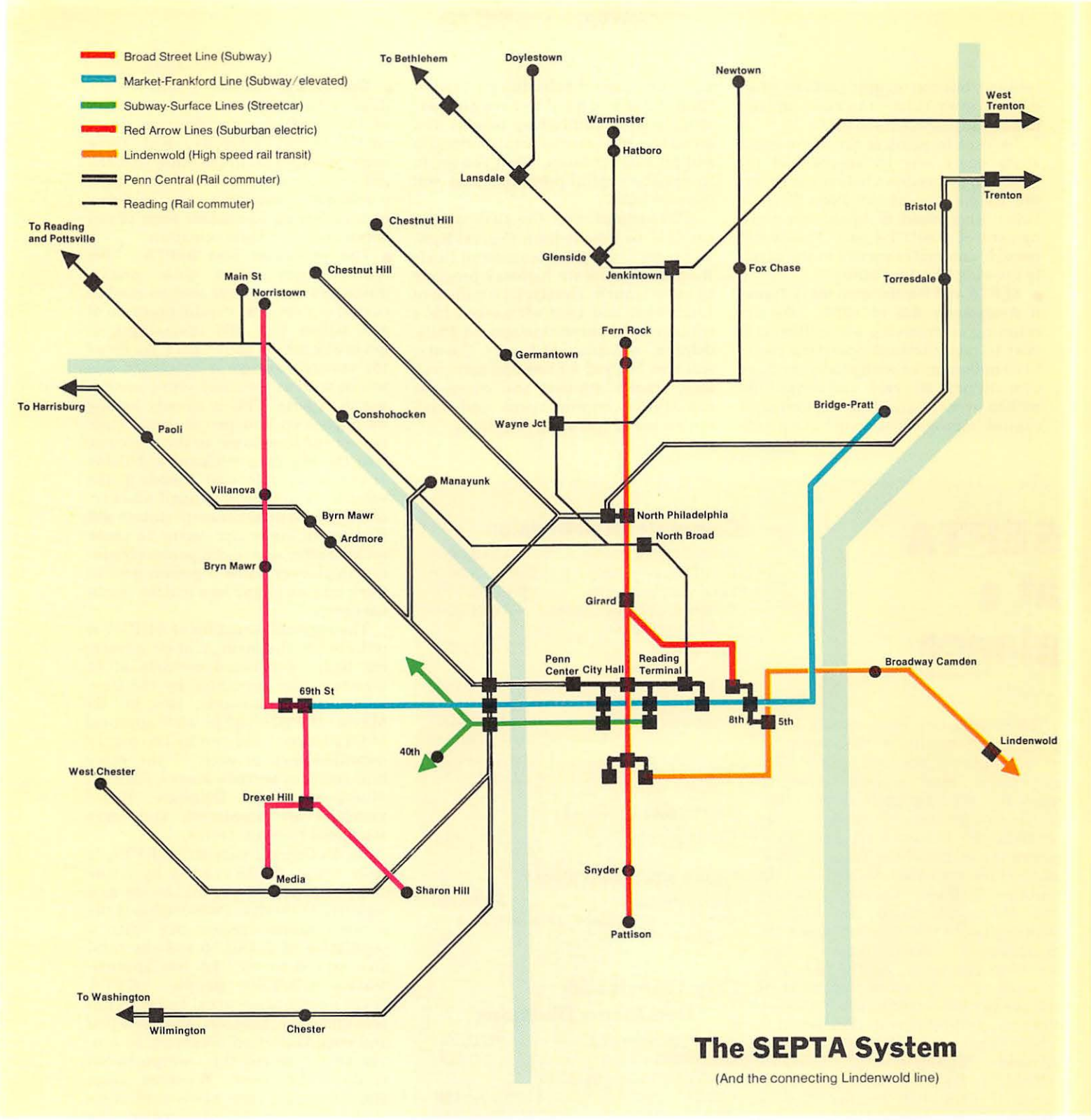
SEPTA Chairman J.C. McConnon

From a start-up budget of $160,000 in its first year—before it had acquired operating divisions—SEPTA is scheduling $212 million in its 1975 operating budget. About 50% will be derived from fares, with two-thirds of the other half to be paid by the State of Pennsylvania and one third by the City of Philadelphia (itself a county) and the four counties served by SEPTA.

Its on-going six-year capital program is now pegged at $2.3 billion, of which $500 million has been approved for funding by the Board since 1970. A major project is the $66 million, 9.8 mile high speed commuter rail link between downtown and the Philadelphia Airport. Engineering studies are continuing on the line, part of which will be along existing Penn Central and Reading track, with construction to begin this year and operation scheduled for the summer of 1976. This is a city project under SEPTA supervision, as is a commuter railroad tunnel to connect the Penn Central and Reading stations in the heart of Philadelphia. (An express bus service from the city center to the airport was started by SEPTA last year as an interim facility pending completion of the airport rail line.)

Also included in the capital program are: rehabilitation of the Frankford elevated; acquisition of 100 new light rail vehicles; construction of a completely new shop to accommodate all LRV's; improvements of commuter stations and parking lots as well as catenaries and tracks of commuter rail lines.

Philadelphia was the first city in the U.S. to bring about a purchase-of-service type of program to preserve essential but money-losing railroad com-



The SEPTA System

(And the connecting Lindenwold line)

muter services. This continues to be the basis of negotiations with the Reading and Penn Central commuter lines, with $19.4 million paid to the operating carriers in 1974.

"In that sense," McConnon notes, "we do not control the day-to-day operations of the railroad or its physical plant. SEPTA purchases service on a cost-avoidable loss basis. For instance, the use of the track is not an avoidable loss to the railroad, which may have use of it for freight. The costs of daily commuter service, however, may be avoidable by taking the commuter cars out of service. This is where the purchase-of-service on an avoidable cost basis applies."

Widely recognized locally as a principal architect of SEPTA in its present form, Chairman McConnon is articulate on just about any phase of SEPTA history, current operations and objectives.

- **The six-year capital program:** "This is successively updated annually and includes plans to improve what is basically a radial commuter service into and out of the city center. In order to make the radial system accessible to as many people as possible in the five counties we serve, cross connections can be established between the radial lines. Such connecting facilities may use buses or even light rail vehicles. This is where existing rights of way can help build a modern rapid transit complex. The city is criss crossed with underutilized freight lines, largely below ground level, which present the potential for an off-street light rail system. True, much work would have to

be done, but the biggest problem of all doesn't even exist—the right of way has already been established.

"A case in point is the engineering study under way by approval of the Board to determine whether the Octoraro freight line of the Penn Central, largely abandoned, is suitable for development of a SEPTA line. This would provide commuter service in the rapidly growing Chester County."

● **SEPTA and the National Mass Transit Assistance Act of 1974:** "We are counting on receiving $10 million this year to apply toward operating costs, $120 million more with similar options over the next 20 years, and about $700 million over the life of the act for major capital improvements. Operating subsidies and capital subsidies go hand in hand. First you have to have an operating system sufficiently reliable and attractive fare-wise to obtain ridership and provide revenues. Then you go on to develop capital programs that will increase both."

(Philadelphia was the first city in the U.S. to benefit from Federal legislation permitting the transfer of funds from the Interstate highway program to mass transit. Nearly $200 million of funds that had been earmarked for a controversial Interstate spur in Philadelphia, adjoining Delaware County, will now be used for new rail cars, trolleys, transit stations and commuter rail station improvements and modernization of operating facilities.)

● **Conrail and SEPTA:** "I don't see any direct effect from the implementation of the ConRail reorganization, since that's largely intercity. But there could be a spin-off in the sense that the rail traveler coming into Philadelphia would more than likely think in terms of transferring to another form of rail service to reach his destination."

● **The recession and SEPTA:** "We spend money under quite precise guidelines but we have seen no need to curtail our six-year capital program of $2.3 billion. Our 1975 operating budget is $12 million above 1974. As far as the energy shortage is concerned this will be with us for many years, according to experts. This is already having its impact on how people spend their money and time to get to the job, come into the city on a weekend or holiday or maybe even to visit friends in the suburbs. The time is at hand when accessibility to public transportation will become an important factor to those seeking jobs, and to companies recruiting employees. How a person gets to work may no longer be a matter of casual choice."

The regional structure of SEPTA is reflected in the makeup of its governing body. The board consists of 11 members, one appointed by the Governor of Pennsylvania, two by the Mayor of Philadelphia with approval of City Council and two by the county commissioners in each of the other four counties served—Bucks, Chester, Montgomery and Delaware. Board members are unsalaried, and serve staggered five-year terms.

As McConnon puts it: "SEPTA is truly unique in the country by virtue of its concept and administration as a regional Authority. Philadelphia is the nation's fourth largest city, with a population of 2,000,000 and the total area served by SEPTA has approximately 4,000,000 people. SEPTA board members are vocal and active in providing the kind of representation and communication necessary to convey to the Board the transportation needs of their area. We must weigh and determine how needs and costs shall be met for the entire region. The state has guidelines which we must follow and the Pennsylvania Department of Transportation monitors very closely our overall operations."

● **New cars on the way.** Replacement of old commuter rail cars is a major undertaking for SEPTA. General Electric is still delivering a 1971 order for 144 Silverliner IV MU cars and has just reached agreement with SEPTA to build an additional 70 Silverliner IV cars. The 1971 order is being fulfilled at a rate of $410,000 per car; the 1975 agreement reads out at $728,000 per car with a clause that provides adjustment upward or downward to reflect

(Continued on page 46)

SEPTA at a glance

The Southeastern Pennsylvania Transportation Authority is the outgrowth of recognition of the need for a unified, cooperative, total regional effort to meet the growing problem of urban traffic strangulation. In the latter part of 1963, the Pennsylvania Legislature passed the Metropolitan Transportation Authorities Act which enabled the four counties of Bucks, Chester, Delaware and Montgomery and the City of Philadelphia to join together under the Southeastern Pennsylvania Transportation Authority. SEPTA was able to build upon the accomplishments of two predecessor agencies, the Passenger Service Improvement Corporation (PSIC) and the Southeastern Pennsylvania Transportation Compact (SEPACT). PSIC was a non-profit corporation established by the City of Philadelphia to manage its commuter railroad program. SEPACT was an informal body organized by the counties of Bucks, Chester, Montgomery and the city to improve commuter railroad service within their jurisdiction. These earlier, segmented approaches to the diagnosis and cure of mass transportation ills had proved conclusively that the 'patient' could respond favorably with public care and feeding. The legislature, in creating SEPTA, formally recognized that the complexity of the problem facing the new Authority could not "be effectively dealt with by private enterprise under existing law. . ."

Commuter Rail Division

Users per day	118,000
Total fare revenues	$21,573,000
Total avoidance cost	44,769,000
Purchase of service grants	19,434,000
Balance absorbed by Railroads	3,762,000

New equipment acquired during seven years under SEPTA

Commuter cars	144 Silverliner IV - 1974-75
Commuter cars	70 Silverliner IV - 1975-76

Total fleet:

Commuter cars	446

Future equipment plans:

Commuter cars . . . . . Additional MU cars to replace cars acquired in 1930's

City Transit and Red Arrow Divisions

Passengers per day	870,000
Employees	6,600
Annual revenues, including grants	$125,532,858
Annual expenses	128,004,244

New equipment acquired during seven years under SEPTA:

Buses	1036 (1969-1975)

Total fleet:

Streetcars	427
Buses	1,648
Rapid transit cars	510
Trackless trolleys	131

Future equipment plans: 5 electric-powered buses (for experimental use on the proposed Chestnut St. mall); 50 new generation buses; 100 LRV's

If you only knew why.

If you listen to enthusiastic users of HALAR® fluoropolymer, you might wonder why design engineers in the mass transit, petrochemical or nuclear power industries would specify any other 150° C insulation. Is there something HALAR fluoropolymer users know which would help you?

For instance, did you know that HALAR fluoropolymer has nylon-like durability, and radiation resistance similar to polyethylene? Or that it has a low dielectric constant (2.5) and excellent resistance to solvents, chemicals and weathering. Also, it passes stringent flame tests even in thin walls. HALAR fluoropolymer passes the UL 83 vertical flame test and is rated per UL 94 as VO in thicknesses as low as 0.007 inch. It is covered by military specs and there are UL-approved wire styles. Two wire and cable constructions with HALAR fluoropolymer insulation have been qualified per the Loss Of Coolant Accident (LOCA) conditions given in IEEE 383.

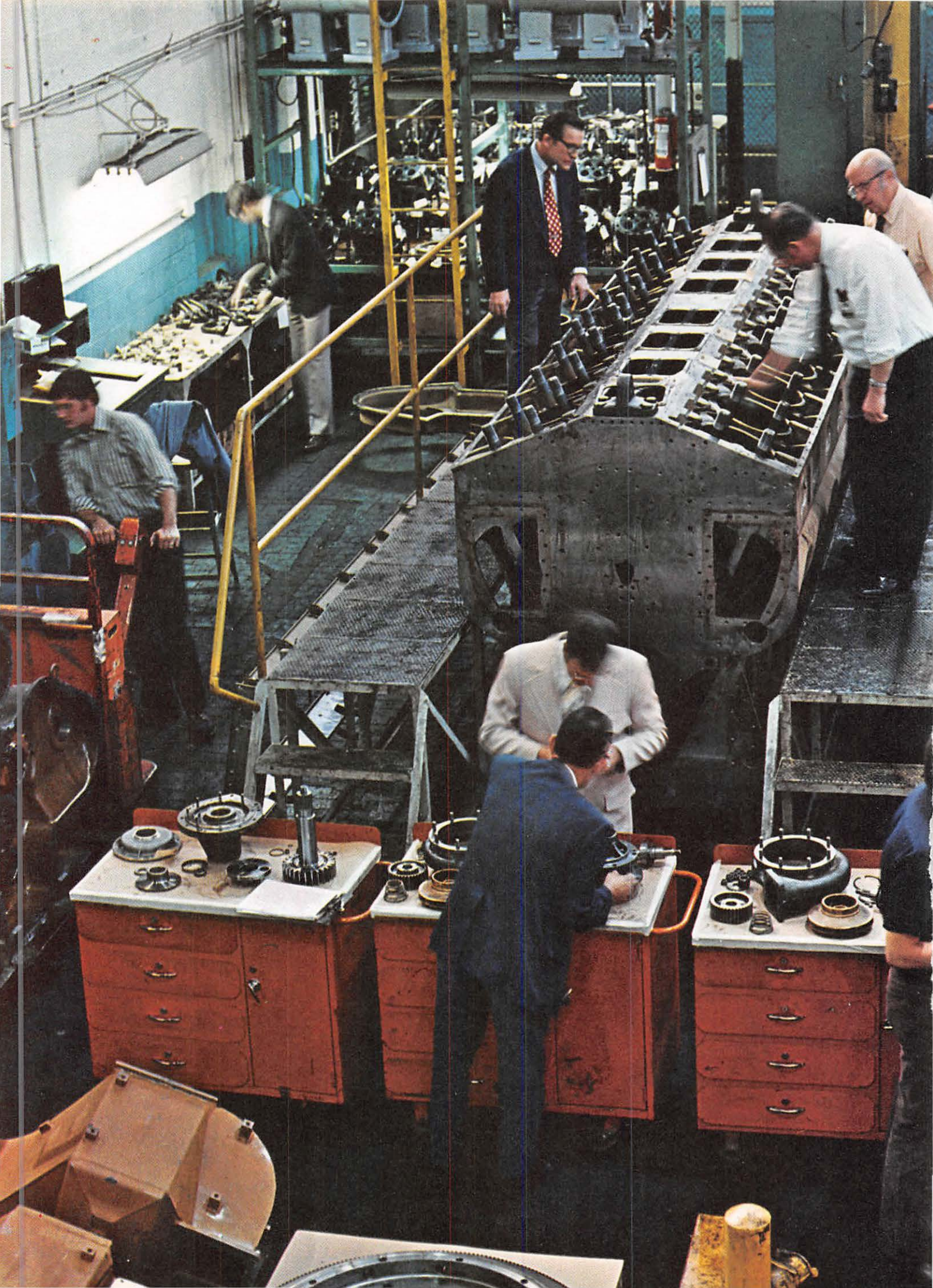
This unique combination of properties makes HALAR fluoropolymer an ideal insulation for computer and mass transit wiring, nuclear control and instrumentation cable, cathodic protection cable, oil well pump cable, and aircraft hookup wire.

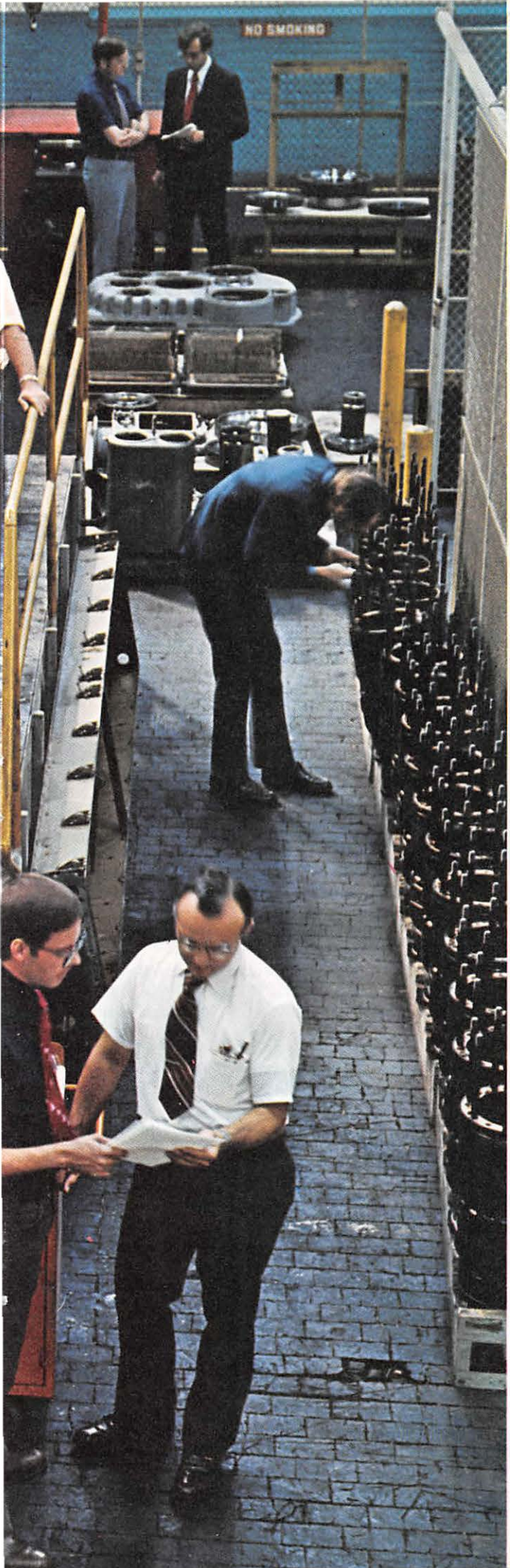
For more whys and wherefores regarding wire and cable products with HALAR fluoropolymer insulation, and a copy of the LOCA Report, write Bruce Robertson, Product Manager, Specialty Chemicals Division, P.O. Box 1087R, Morristown, N.J. 07960.

HALAR®

The Better You Know Us The More We Can Do For You.

Circle 17 on Reader Service Card



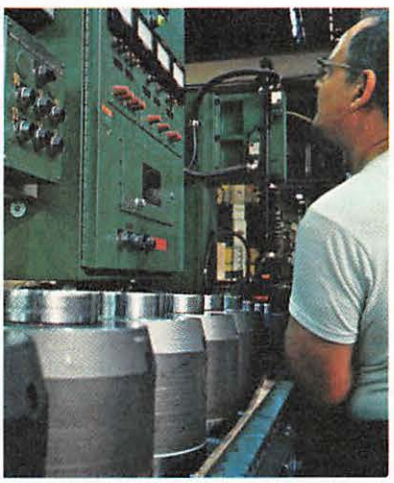


13,400 engine parts get their final exam.

This 16-cylinder Diesel went through 1,013 not-so-ordinary inspections on the final assembly line. Many of these inspections use special equipment, designed only for EMD. Every engine we build gets this same thorough treatment—from checking crankcase dimensions and tightness of nuts and bolts to verifying the horsepower it produces. And before an engine is approved, it gets a seven-hour running test, followed by a comprehensive visual inspection.

But this particular engine was selected at random for extra-special attention. It's one of the engines we audit every 90 days as a final exam of our production quality.

First we run it for 100 hours, cycling it from idle to full load. Then we disassemble it completely, observing and recording what we find. Major parts are reinspected, critical parts and tolerances are reviewed, and final exam results are recorded.



Finally, parts and recorded inspection checks get a critical review by management in design, manufacturing and quality control. All together, this 100-hour extra run and evaluation takes about three weeks. We think that's time well spent when you consider how important every Diesel is to the customer.

The full-load 100-hour operating test and disassembly exam is just one reason why most of the more than 88 million horsepower we've built is still going strong all over the world.

GM
MARK OF EXCELLENCE

Electro-Motive Division
La Grange, Illinois 60525 USA
Telex: 728-304 · TWX: 910-691-2186

the builder's cost changes (RA, Feb. 24, p. 8).

One of SEPTA's objectives is the improvement of commuter rail stations and parking lots, both to be provided with adequate lighting. Some station facilities were actually sold by the railroads to raise cash, in which case SEPTA has to negotiate the purchase or lease of properties, particularly for the essential parking lots. Seven Reading and six Penn Central commuter lines are in the SEPTA system's Rail Commuter Division. The Reading routes of 148.3 miles (83.2 electrified) serve 101 stations and carry 47,000 passengers on an average week day. PC's lines cover 124.7 miles (all electrified), serve 96 stations and carry over 71,000 passengers on a week day. The combined ridership for the two roads was 30,241,026 in 1974, up 238,112 from 1973. Annual ridership has increased by 14½% since 1965.

SEPTA's two other operating divisions are the City Transit Division (the former Philadelphia Transportation Company) which had 242.8 million riders last year, and the Red Arrow Division with 19.5 million riders. These divisions showed a combined 14.7 million increase in ridership over 1973. The Red Arrow Division is completing the double tracking of its line to Media. Sports enthusiasts have taken full advantage of the subway extension opened in mid 1973 serving the Philadelphia sports complex of the John F. Kennedy stadium, Veterans stadium and Spectrum.

Total ridership of all SEPTA facilities per day is 975,000, total employees—6,600.

An underlying philosophy of service to the public is evident in the publication this past year of a SEPTA Braille guide, acclaimed as the most extensive guide in the country for visually handicapped persons. Some 28 million of last year's riders on the CTD and Red Arrow were senior citizens who ride for 10 cents or free during off-peak hours, Sundays and holidays. Commuting students ride for half fare.

● **New LRV Studies.** Rehabilitation has already begun on the 180 PCC trolley cars of the City Transit Division. SEPTA is also working with the Urban Mass Transportation Administration in its evaluation of light rail vehicles (LRV) as replacements for or additions to its subway-surface fleet of PCC cars. the six-year capital program has provisions for 100 LRV's. The Boeing Standard LRV, according to McConnon, was unable to negotiate a tight turn on the underground rails beneath City Hall because of its articulated design. A design modification of the Boeing product apparently is not ruled out. SEPTA is also looking into other design options, such as the non-articulated LRV's of the type now being studied by the Toronto Transit Commission.

SEPTA also has automobiles on its priority list—namely, where to park them. An extension of the Reading commuter line 1.8 miles from Hatboro to Warminster was opened last July. The new station was provided with a parking lot for 310 cars with the assurance it would do well in a few months. Within a few weeks, the lot was full and passenger traffic was doing as well as SEPTA had hoped for in a year. SEPTA has been able to obtain Federal money from the Interstate Highway Act in support of projects involving 22 parking lots at rail commuter stations.

70 NEW SILVERLINERS have just been ordered from General Electric. Above, Frank A. Aptacy, GE's regional sales rep, with SEPTA Chairman McConnon.

● **Telling the people.** Letting the public know how and where to use its riding facilities is an important part of the SEPTA operation. A public information telephone bureau service was started in 1972 to answer questions on schedules, fares and how to get from point "A" to point "B." The number of calls handled has tripled from start-up, and is now running at the rate of 2 million a year. Provisions are being made for further expansion to handle calls from Bicentennial visitors. SEPTA uses radio, television and newspapers to tell how public transportation is used as an inflation fighter. This includes case histories of how individual citizens have saved money by switching to SEPTA for getting to the job, college, shopping and visiting friends.

Plans to handle the 18 to 22 million visitors anticipated during the Bicentennial include a new subway exit and entrance at the Fifth Street subway station serving Independence Hall and its restored Mall area. The city and a number of civic groups are giving financial assistance to SEPTA on this station improvement. The cultural bus loop serving the city's museums from downtown was begun in 1974, and will probably be expanded.

The Pennsylvania Department of Transportation has asked SEPTA to operate rail diesel cars between Philadelphia and Valley Forge during the bicentennial.

The City of Philadelphia is a major participant in all of this activity through its membership on the SEPTA Board. An important undertaking to make possible through-train connections is the city's own project to construct an underground rail line (of about four city blocks length) between PC's Penn Center station and the Reading terminal in downtown Philadelphia. The city also owns the trackage by which the PATCO Lindenwold line enters Philadelphia from New Jersey.

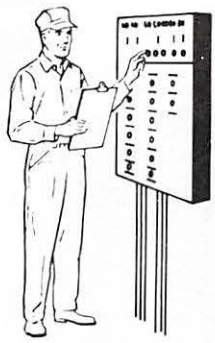
● **Balancing the load.** During the past couple of years, the Greater Philadelphia Chamber of Commerce and SEPTA have been working with merchants and industrial groups to promote a staggered work-hour program. The result is already significant with some 33,000 workers opting for the half-hour or so shift in their former 9-to-5 work day, according to Dan Noonan, vice president for public affairs at the Chamber.

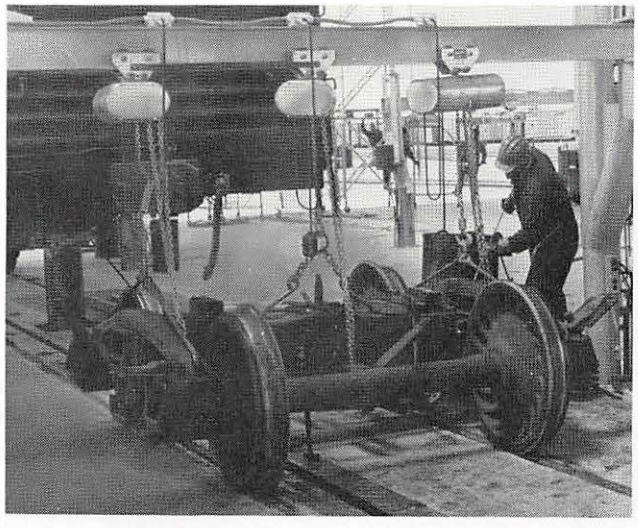
If any one wants to judge the importance of SEPTA to Philadelphia, all one has to do, says Noonan, is stand in front of City Hall Plaza and view the city along the main quadrants of the compass. New office buildings and some still under construction are an evidence, at all four major "headings," of the city's vitality. The arteries in and out of the city are SEPTA, and as Noonan says, "There is so much to be said for SEPTA, that we look at it in contrast to what our situation would be today without it."

Among the many-faceted objectives of SEPTA is restoration of the city streets as functional thoroughfares, not parking lots, caused, as McConnon notes, when "the suction effect of urban expressways and the city streets they dump into are periodically jammed to the point of immobility."

McConnon is on record as saying, "The urban cloverleaf, our new national flower, has become an all-consuming weed." Millions of Philadelphians apparently view SEPTA as that long-sought weed killer. ■

Is your Repair Facility as Efficient as your Yard?





An RMC Spot Car Repair System will deliver significant savings! With push-button control, cost reductions are gained in these areas: (1) A generous increase in labor efficiency over methods used previously. (2) Savings on AAR Billings. (3) Reduction in per diem costs. (4) 50% to 90% savings on switch engine hours.

There now are over 100 tracks being served by RMC equipment. May we discuss how these systems can contribute major savings in operation of your repair facility.

RAILWAY MAINTENANCE CORPORATION, Box 1888, Pittsburgh, Pennsylvania 15230.

RMC

SPOT REPAIR SYSTEMS

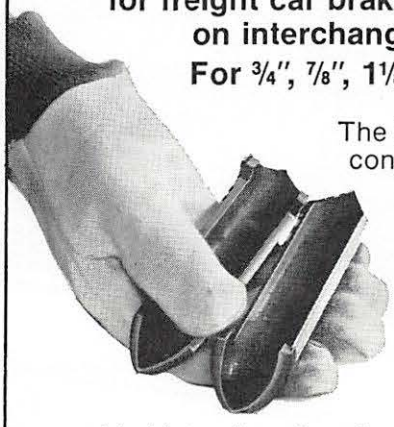
MEMBER RPI

Circle 18 on Reader Service Card

with the tested, approved*

Buffalo Connector System

The improved Buffalo Connector is an easy to use, low-cost system for freight car brake rod repairs on interchange cars. For ¾", ⅞", 1⅛" rods.



The Buffalo Connector consists of two pieces of heavy pressed steel which are used to repair broken, bent or worn brake rods. They act as a splint around the ends of two rods and when welded into place, they form a joint as strong as the original rod. Tapered ends avoid risk of hang up on a carrier or structural member. Order now for prompt delivery. Use-tested in thousands of applications. Write for FREE brochure showing step-by-step installation.

***Reference AAR Circular D.V. 1817**

Buffalo Brake Beam Company

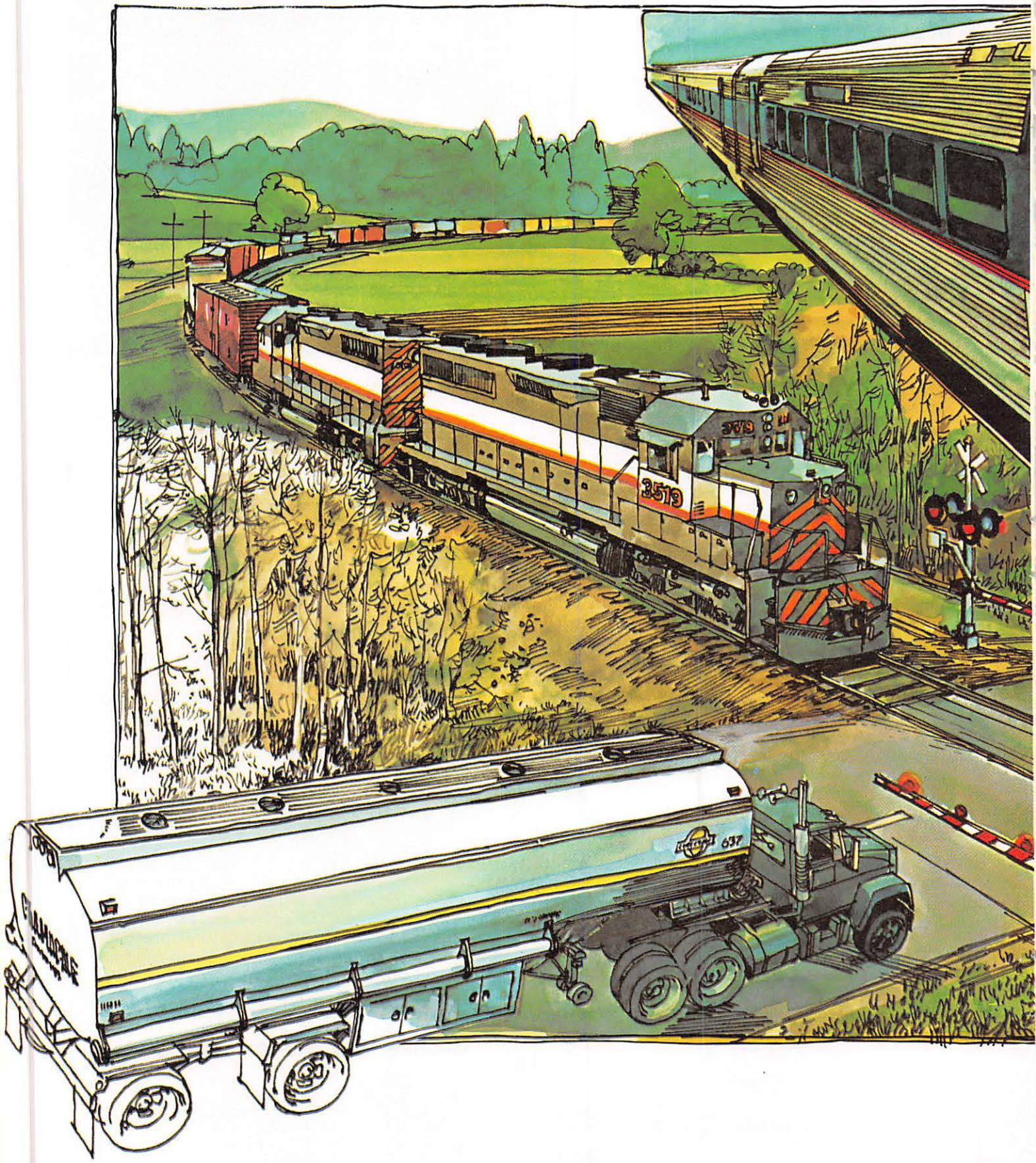
400 Ingham Avenue,
Buffalo, N.Y. 14218

MEMBER RPI

In Canada: Davanac Industries, Ltd.
155 Montpellier Blvd.
Montreal, Quebec H4N 2G3
Plant: Hamilton, Ontario

Circle 19 on Reader Service Card

WABCO Control: First we keep autos



out of trains. Then people out of autos.

Before red lights flash and striped arms drop, sophisticated, extremely reliable monitoring, sensing and signaling equipment operates within tight time tolerances. WABCO has designed and manufactured total systems for every type of crossing protection.

The pressure is building for more crossing protection along your lines. We'd like to put our experience to work for you. It will take some of the pressure off.

Park and Ride.

WABCO control systems also induce people to park and ride. We design and build the highly automated control systems which contribute to on-time, safe arrivals. Our control systems enable an entire transit line to be operated from one control center. We regulate starting and stopping, speed, and even provide voice communications between train attendants and control centers.

What this means is, when it comes to rail transportation, WABCO provides control. We want you to know more about what we do.

Write: WABCO Transportation Systems Group, Union Switch & Signal Division, Westinghouse Air Brake Company, Pittsburgh, Pennsylvania 15218.

TRANSPORTATION FROM THE WORD GO!

The WABCO Transportation Systems Group is: Union Switch & Signal Division, Westinghouse Air Brake Division, WABCO Ltd., Cardwell Westinghouse Company, Fresinbra Industrial, S.A. In transportation, WABCO is also 17 European operations and licensees and agents throughout the world.

WABCO

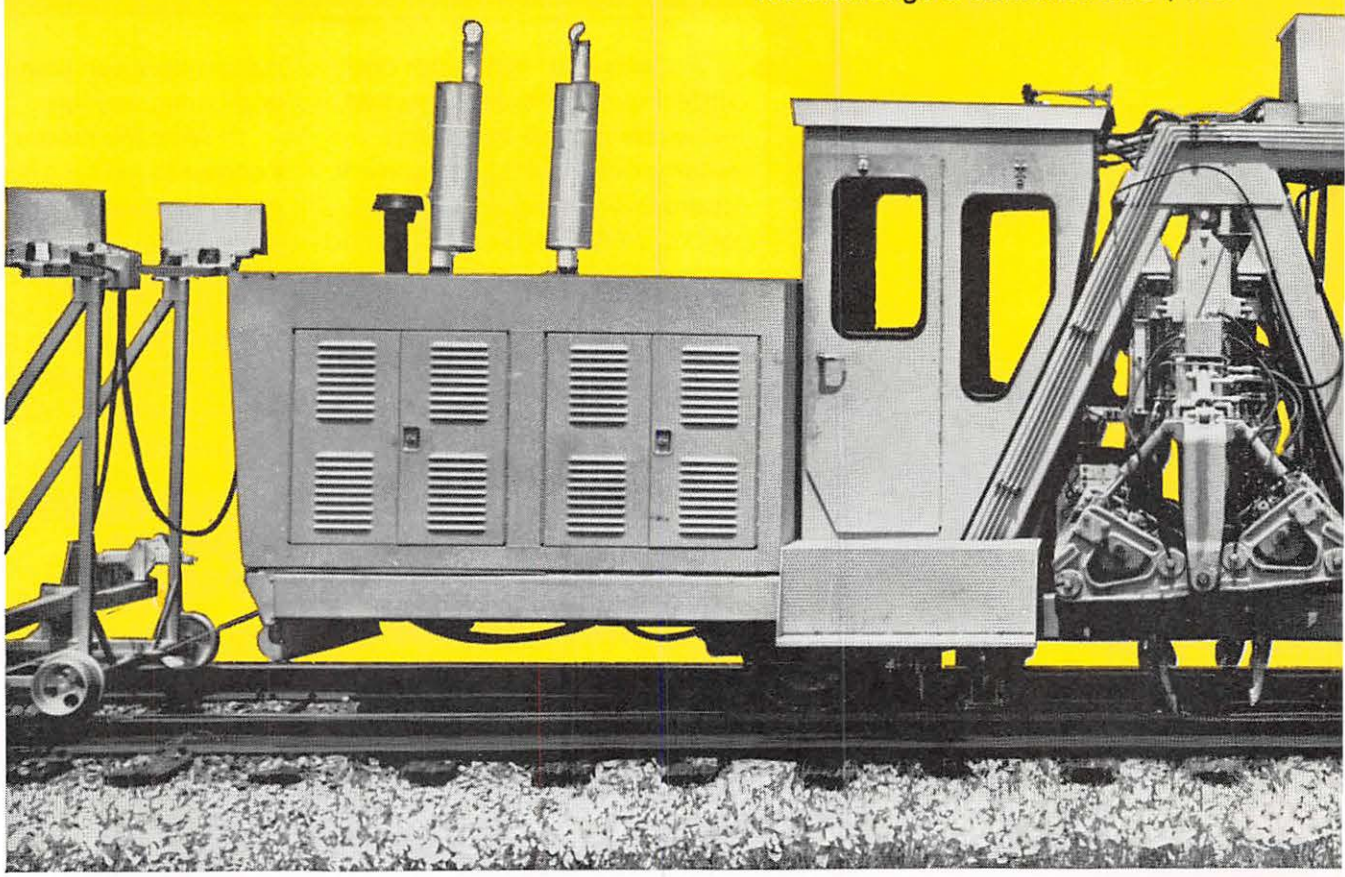
An American-Standard Company

Circle 20 on Reader Service Card

JACKSON

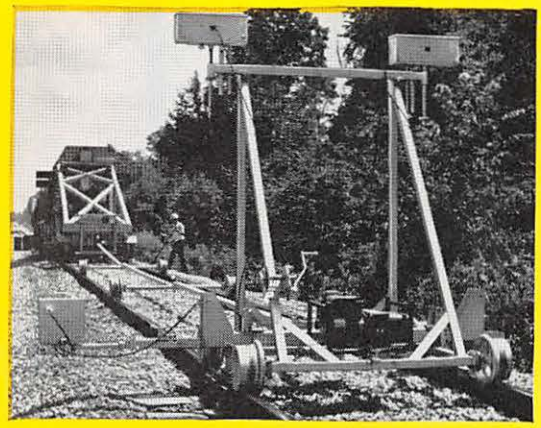
THE

If you need a big, steady, stay-on-the-job, production machine, the new truss-designed Jackson 6000 is for you. Output is high, with Jackson's traditional reliability and low maintenance costs. Truss-engineered design eliminates jack feet that bear on ballast shoulders and minimizes clearance requirements. Workheads are patented Jackson tilt squeeze-vibration type that place ballast and give maximum densification where it's needed most . . . beneath the junction of tie and rail. The Jackson 6000 includes a long list of additional features . . . top hydraulics enclosure for easy maintenance, heavy-duty welded construction throughout, noise-excluding cab, optional cab air-conditioning, component reliability upward of 95%, and the front-to-back American-built dependability and quality that only Jackson can claim. Ask us for details on the 6000. We'll arrange a demonstration, too.



MODEL 6000
BIG PRODUCER

The 6000's rugged truss design handles up to 4-inches of raise and ± 4" lining offset. Travel speed is up to 40 MPH.



The Jackson 6000 is fully compatible with Jackson sensing systems and operator controls are fingertip, pushbutton, conveniently grouped for easy operation, minimum fatigue. Control of all aspects of automatic jacking, leveling and lining are directed by the operator.

FOR FULL INFORMATION CONTACT

JACKSON RAILROAD EQUIPMENT CO.

International Tower Building, Suite 703
8550 West Bryn Mawr Avenue, Chicago, Illinois 60631
Telephone: Chicago 312-693-3700
Ludington, Michigan 616-843-3431
Cable: JAKTAMP

Circle 21 on Reader Service Card

Computers, track-recorder car team up in battle against derailments

Working together, the Southern's track-measuring car and its computer setup are waging what appears to be a successful struggle against derailments.

This conclusion seems warranted in view of information contained in a paper presented before a recent seminar sponsored by International Business Machines Corp. The paper was delivered by Robert F. Tuve, manager quality control engineering, Southern.

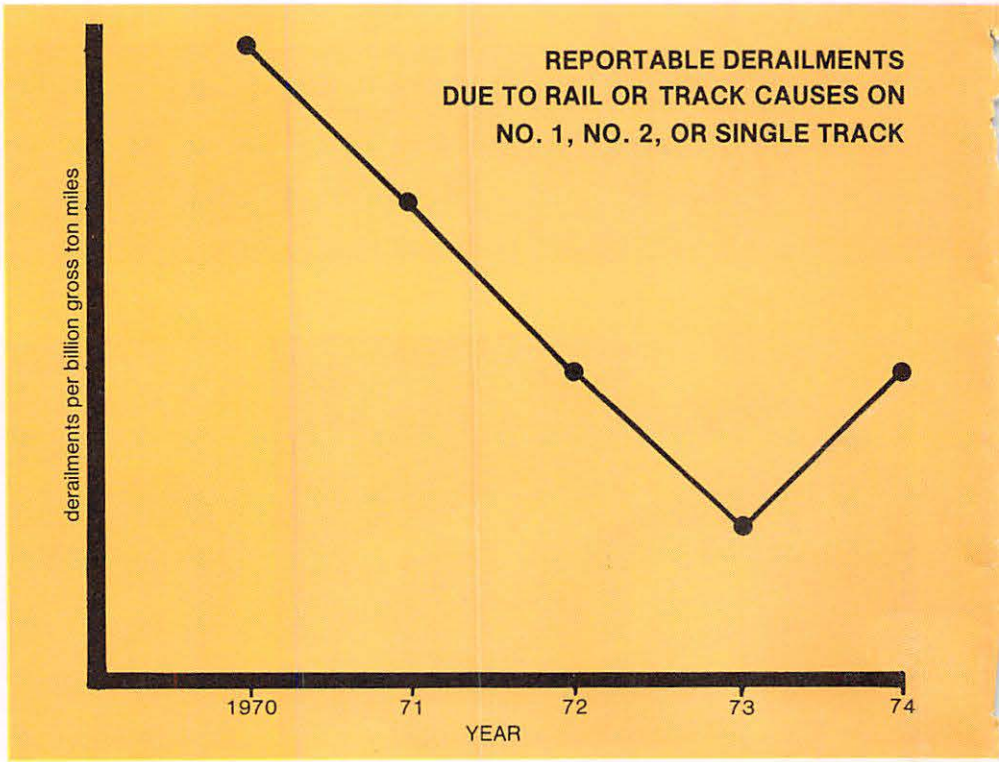
Using data produced in part by the Southern's track geometry car and partly from other sources a program was undertaken to reduce the rate of derailments charged to rail and track defects. Subsequently, reports Tuve, the Southern had a 30% reduction "in the main line 'reportable' derailment rate over the past five years for derailments charged to rail or track causes."

The program to reduce derailments is computer based and relies heavily on information from sources other than the track geometry car. As part of his presentation Tuve described the various computer files the Southern has developed in conjunction with its maintenance of way operations.

The computer file or data base that will have the greatest long-term impact on the road's maintenance of way operations is its track characteristic "master" file, says Tuve. Basically, he adds, this amounts to a system rail chart on magnetic tape. Information included in the track characteristic master file includes the freight traffic density, rail weight, jointed or welded rail, new or relay rail, air-cooled or control-cooled rail, year rail laid, date track surfaced, degree of curvature, track grade and type of track spiking

- **Key source of data.** Data from the road's track geometry car is a key source of information for the track characteristic master file, Tuve indicated. An onboard computer is used to digitize the measurements and to transcribe the data onto magnetic tape compatible with the road's main frame tape readers.

The Southern's track geometry car is known as Research Car No. 1 (R-1). It totals 286,000-lb weight on the rail and is capable of testing track at speeds up to 80 mph. On board the car is an analog chart recording table, teletype printer and digital computer for processing track geometry data. The track data are stored on magnetic tape by the onboard computer. The tapes are forwarded to Atlanta, Ga., for processing into the master file.



DERAILMENTS attributed to rail and track causes have shown a downtrend on the Southern in recent years, despite the rise in 1973.

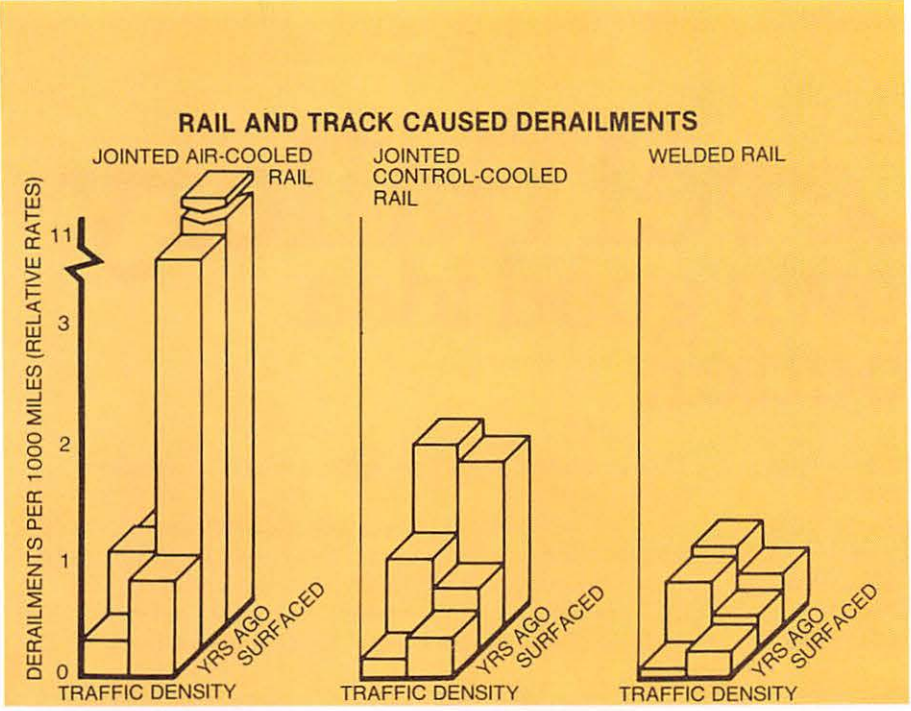
- **Master file of derailments.** In furthering the program to reduce the rate of derailments charged to rail and track defects, "it is essential," said Tuve, "to have an accurate and noncontroversial record of the derailments involved. Therefore, early in our program we developed a master file of all derailments, and our senior management put a great deal of pressure on operating personnel to report all derailments regardless of cost."

The information pertaining to the derailment itself comes from the derailment report, Tuve said. "But once we have the exact derailment location, we can go to the track characteristics master file to obtain freight traffic density, grade, degree of curvature, rail weight, and date surfaced. Similarly, once we have the first car derailed, or the causing car if not the first car, we can go to the Umler file (the Universal Machine Language Equipment Register developed by the AAR) for critical car characteristics."

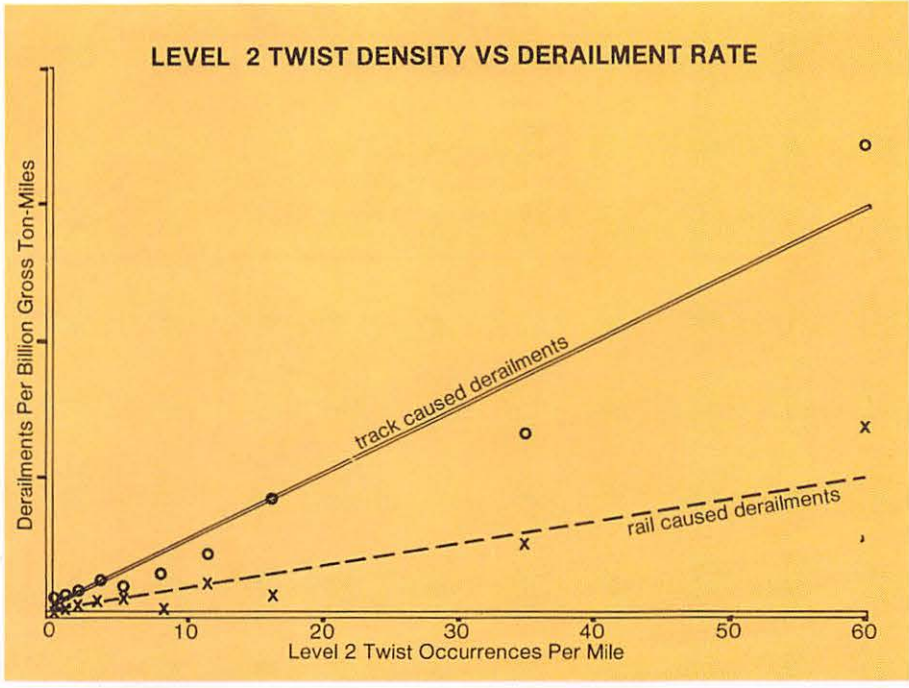
When obtaining data from the computer files in conjunction with the program to reduce derailments, an essential feature is what Tuve called the "picker program." The picker, he said, can select on any one or more of the track characteristics in the file, including the various levels of the track geometry parameters.

The output, Tuve explained, is in two parts. One part gives a listing of all line segments possessing the characteristics specified. For each segment is listed the division name, the line, the milepost end points of the segment, the track number, and the number of miles of tangent, curved and total track. The report also prints out the total number of miles of track possessing the characteristics specified, for each division and for the entire system.

- **Printout of derailment data.** The second part of the printout provides defect and derailment data for all track meeting the selection criteria. This includes the number of rail defects by type, the rail defects per hundred miles, the number of service rail failures, the number of priority track geometry defects by parameter and the total number of priority defects per 100 miles. For a derailment time span selected by the requester for this same track, the report also prints out the number of derailments charged to track condition and those charged to rail defects, the cost of derailments



HOW DERAILMENT RATE is affected on the Southern by rail characteristics and the interval since the track was surfaced. Superiority of welded rail is evident.



TWIST OCCURRENCES may have a great influence on track-caused and rail-caused derailments, according to this chart.

charged to track condition and rail defects, and the derailments per billion ton-miles for each.

The R-1 car measures five different parameters on a continuous basis and counts events or occurrences at four levels of severity, Tuve said. The four levels of severity have been established to facilitate interpretation of the data, he explained. These have been named Level 1, Level 2, "priority," and "red letter."

● **Levels of severity.** Level 1 is the least severe condition. Level 2 corresponds to a defect generally 50% higher than Level 1. Both Level 1 and Level 2 are used in evaluating track quality. A priority-level condition is a track defect sufficiently critical to cause concern and is scheduled for correction as soon as local forces can arrange to do so. This work is given priority over regular track maintenance. Red letter defects are of such importance that they could affect safe train operation, and are therefore corrected immediately. If this is not possible a speed restriction is placed on the track until the defect is repaired, Tuve explained.

A second key computer file in the maintenance of way area "is what we call our track profile master file," Tuve said. "This file is used to produce our track profiles which are used extensively by major departments on the railroad. The milepost, station, grade and curve data for our track profile master come directly from our track characteristics master. The balance of the information, such as sidings, industry leads, train signals, grade crossings, bridges, tunnels, hotbox detectors and microwave towers were all spotted by observers on our research car when that car was on routine assignments to measure the track geometry data."

Finally, said Tuve, the program gives the total annual gross ton-miles over the track meeting each set of selection criteria. This system, he adds, "becomes a very useful device for analyzing the various factors associated with derailments. Our first use of the program was just such an analysis. In this study we evaluated jointed rail versus welded rail, different levels of freight traffic density, kind of steel—that is, air cooled versus control cooled—and number of years since last timbered and surfaced. We split the freight traffic density into less than 10 million tons per year and more than 10 million tons, and defined three levels of years ago surfaced, namely less than three years, 3 to 5 years, and more than 5 years.

● **Startling results.** "The results were quite startling. One of the charts shows the effect of kind of steel, jointed versus welded rail and freight traffic density on the number of derailments based on five years worth of rail and track caused derailments. The superiority of control-cooled rail over air-cooled rail is obvious, and the superiority of welded rail over either type of jointed rail is even more evident.

"The chart clearly shows the importance of periodic surfacing, and the high cost of running high density traffic over poorly maintained rail is overwhelming. As a result of this study, guidelines for track maintenance were developed which would reduce the derailment rate and approach optimization of dollar expenditures for track maintenance. A five-year plan was developed for timbering and surfacing, with each segment of the railroad given a scheduled maintenance frequency ranging between 3½ years and 10 years, depending principally upon density.

"A similar approach was used to determine priorities for rail laying. In this case the picker program was used to determine the amount of rail still in track by year laid, going back 60 years, combining this with manual records giving the amount of rail actually laid by year. From this, it was possible to determine the expected life of rail in

(Continued on page 70)

The Bi-Level Gallery.
We took our own good idea and made it better.

You're looking at one of the most innovative passenger cars on the rails today. It's the all-new, bi-level gallery car. And they're built from end to end, from top to bottom by the people who build them the best. The Budd Company.

The first gallery commuter car was our own idea. Over the years, it has become recognized as one of the most innovative ideas in railway passenger cars in decades. Now they're better than ever.

This new beauty is typical of some 41 new cabs and trailers ordered for the North and Northwest Suburban Mass Transit Districts for operation on the Milwaukee Road. It's new—inside and out.

Walking through the new car, the first thing you'll probably notice is the new 3 color decorative scheme. And a special ribbed rubber floor to prevent slipping. There's more people comfort, too. The seats are wider. And the windows. They're double glazed Lexan. More flexible. And safer against breakage.

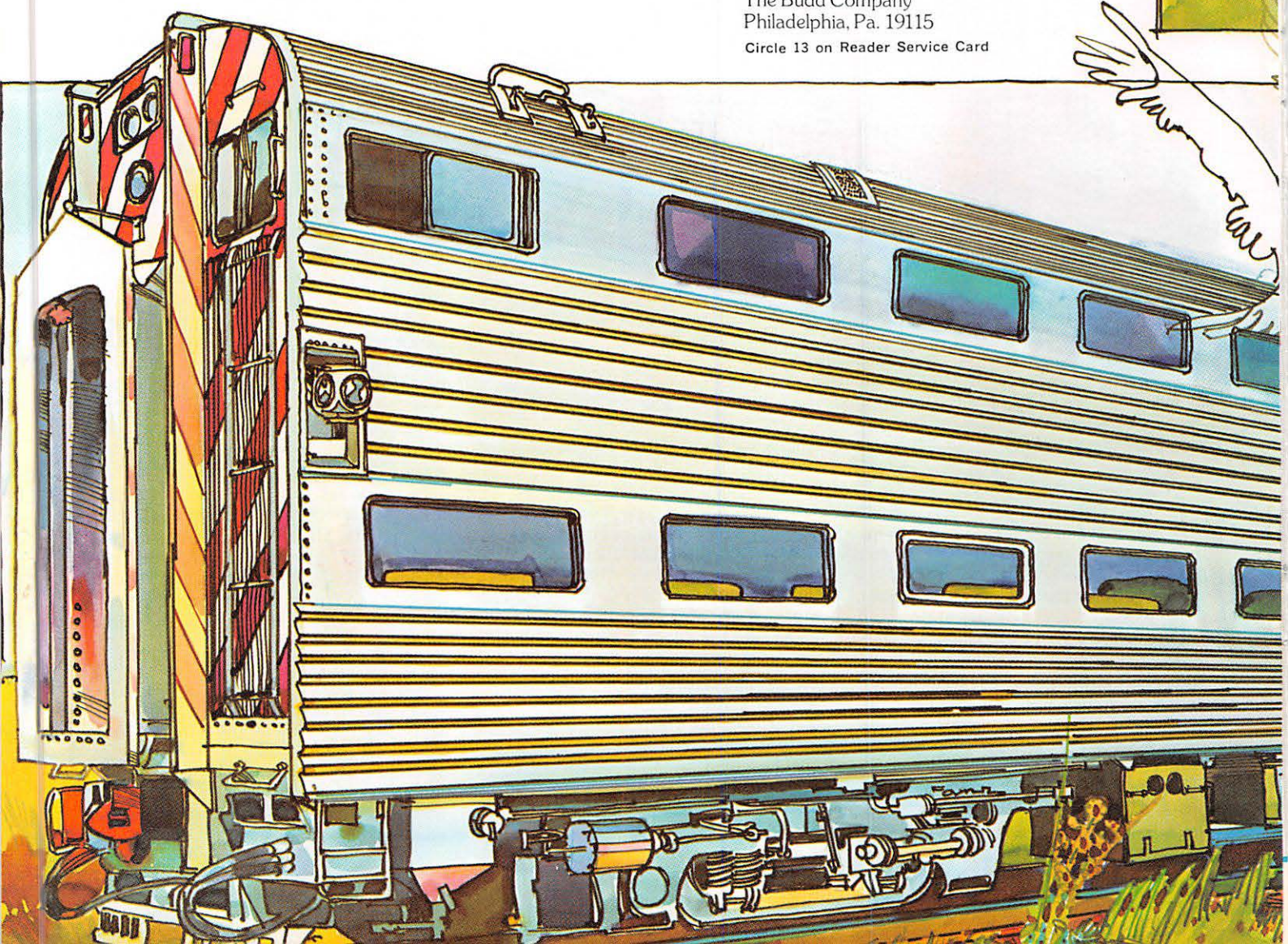
New non-polluting toilets were also installed. There's a public address system, as well as a phone for the engineer in the lead car that works much like a ship-to-shore radio. And, for safety, we incorporated new strength into the end of each car. These are but a few of the changes we made for the better.

We wanted to make these cars the best yet. And they are, for good reason. Because the only way we're going to keep our number one position in the railway passenger car industry is to make the best. Only the best. We think we're doing it.

THE Budd COMPANY

Norman W. Fesmire, General Manager
Railway Division
The Budd Company
Philadelphia, Pa. 19115

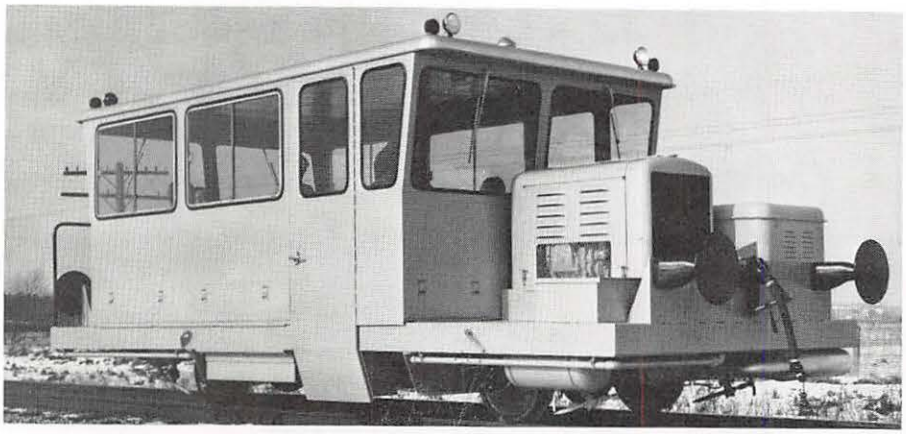
Circle 13 on Reader Service Card



Upper part of gallery car.

Lower part of gallery car.

Products Report



Jackson builds heavy-duty motor cars for Algeria

The first of ten heavy-duty motor cars has been delivered to the Algerian National State Railways by the Jackson Railway Equipment Co.

The motor cars, designed and built in Jackson's Ludington, Mich., plant, can carry 20 men and pull as many as three freight cars of supplies to on-track job sites at speeds up to 38 mph, says the manufacturer. The operator controls the car from a single elevated station at the head end. Cabs also feature soundproofing, rubber-mounted safety glass all around, sliding side windows, doors on each side and heat-reflecting roof coating. Built to Algeria's 56½-inch gauge, the cars are powered by GM Model 4-71 heavy-duty diesel engines, N Series, which develop 125 hp at 2,000 rpm.

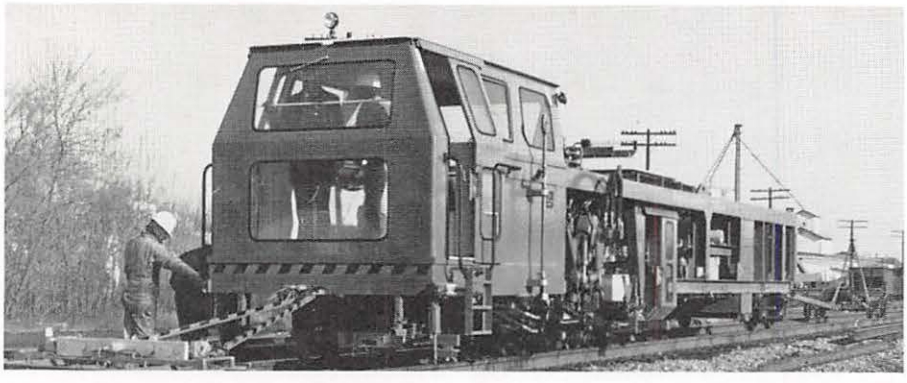
Transmissions are GM Allison torque-converter types with three speeds forward and reverse. The units are equipped with air brakes and sanding systems and have 120-gallon fuel tanks and 24-volt electrical systems.

Designated as Model 3200 by Jackson, these motor cars have an empty weight of 21,000 lb, drawbar pull of 7,000 lb with sanding, and can transport a net load of 5,500 lb.

The operator's station includes a full range of displays and controls: engine hourmeter, speedometer, ammeter, sanding and brake controls, gauges for fuel level, oil pressure, water temperature, air pressure, torque converter and pressure, plus light and windshield wiper switches.

Towing capability varies with gradient and speed from 15 metric tons on a 15 mm/m gradient at 40 km/h to 795 metric tons on level at 5 km/h.

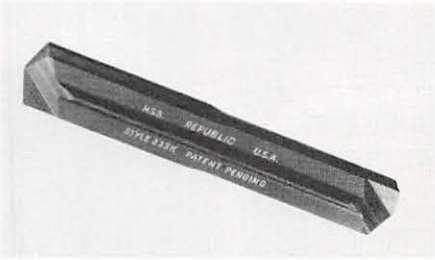
The Algerian National State Railways will take delivery of the remaining nine units at intervals throughout 1975 as they are built on Jackson's production line. Circle 60 on reader service card



New machine is designed for switch and yard

A new tamper, designated the Plasser Universal Yard Master, has been introduced. Primarily designed for switch and yard tamping, this machine may also be used for lifting, lining and tamping tangents, curves and spirals. It is a 16-tool machine with two 8-tool independent heads having tiltable tamping tools. The unit incorporates newly designed rail clamps which grip the rails under the heads. The Universal Yard Master lines as well as lifts and tamps turnouts. Servo valves are used for the automatic control of lifting and lining. The machine has a four-wheel drive and the operator's cab is soundproofed so that the noise level is reduced to 75 decibels, according to the manufacturer. It is claimed that the Universal Yard Master is capable of raising, lining and tamping a No. 20 turn-out in 35 minutes.

Circle 61 on reader service card



This double-end track bit produces twice as much

New "double-duty" high-speed steel track bits, now being manufactured exclusively by Republic Drill & Tool Co., are said to allow double the amount of holes obtained with single-point track bits. It is said that the "double-duty" track bit will dramatically cut the cost per hole, producing twice as many holes with half the inventory now required. The new bits are claimed to be compatible with all existing track-drilling equipment in use today. The bits are available in sizes 1 inch to 1½ inches by 16ths of an inch from all authorized stocking distributors. A patent is pending.

Circle 62 on reader service card

Air brake hose support gets AAR approval

The AAR Brake Equipment Committee has approved "conditionally unlimited sales" of Vapor Corp.'s air brake hose support for installation on cars in interchange service. The support is designed to prevent costly air hose partings and support chain damage. By incorporating a steel compression spring between two short lengths of durable steel chain, the support gives under abnormal stress conditions. Combining the flexibility of rubber with the strength of steel, the support allows

(Continued on page 60)

QUALITY PRODUCTS FOR FREIGHT CARS AND PASSENGER CARS

At Dresser Transportation Equipment, we are dedicated to serving railroading by providing quality products to best meet the needs of our growing industry.

For over 80 years now, we have been designing components bearing the names of Gould®, Waugh®, Symington® and Hydra-Cushion® . . . and each and every product was engineered with the intent of advancing the functioning, serviceability and capability of the railroad cars in which they would become an integral part.

The fact that our products have proven their value and dependability is a most rewarding and appreciated result of the hard work and effort to which we have pledged ourselves. We sincerely thank you for your business and we are committed to serving you in the future.

Described here are just three of our multi-product line.

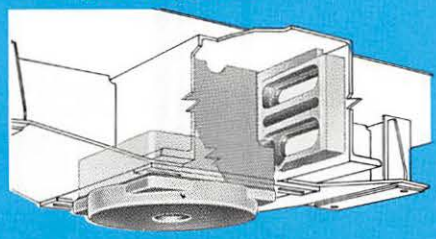
SEND FOR OUR FULL-LINE BROCHURE NO. 100.

FOR NEW CONSTRUCTION

LOW-PROFILE® CENTER FILLER PLATE

A unique design which combines structural advantages of an integral cast center bowl with economic advantages of fabricated types. The simplicity of its design saves application dollars and, in turn, creates dollar income through saving in car weight.

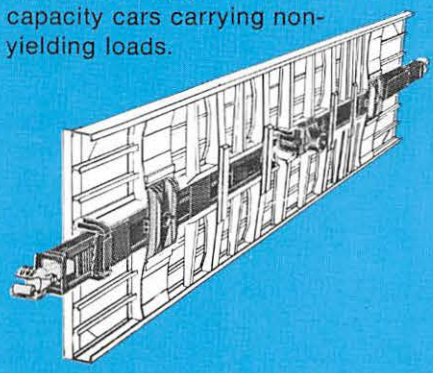
Typical Application With Cast Steel Draft Lugs On Hopper Car



FOR NEW OR EXISTING CARS

HYDRA-CUSHION® UNDERFRAME

Designed with a unique combination of low-pressure hydraulic unit and friction plates which gives freight cars an extra cushion of protection against shocks which can cause damage to lading or to the cars themselves. Easily installed on new or existing cars, applicable for standard 50-, 70- and 100-ton general purpose cars. Special heavy-duty components are available for larger 100- to 125-ton capacity cars carrying non-yielding loads.



FOR REPAIRS

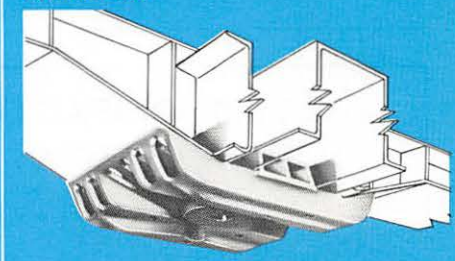
BODY BOLSTER CENTER SUPPORT CASTINGS

Available in a variety of designs to accommodate most all standard configurations of body bolster bottom tie plates—

- For Standard And Heavy-Duty Sliding Center Sill Cars of 50-, 70- and 100-ton capacities, having body or truck mounted brakes;
- For Conversion Of Conventional Cars of 50- and 70-ton capacities to sliding center sill types.

All have flame hardened bowl or manganese steel wear rings applied to bowl. Bowl diameters 12″, 14″, 15″ or 16″. (Custom designs can be engineered for special types, whether for new cars or for replacements.)

For Riveted, Bolted or Welded-On Applications

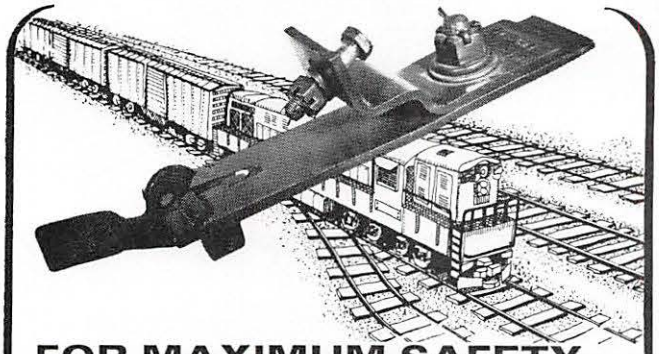


Transportation Equipment DRESSER

TRANSPORTATION EQUIPMENT DIVISION, DRESSER INDUSTRIES, INC.
HOME OFFICE AND PLANT: 2 MAIN STREET, DEPEW, N.Y. 14043 • (716) 683-6000
FIELD SALES OFFICES: CHICAGO • ST. LOUIS • SAN LEANDRO

MEMBER RPI

Circle 24 on Reader Service Card



FOR MAXIMUM SAFETY AT SWITCH POINTS

AUTOMATIC SWITCH POINT LOCK

- **Protects against switch damage due to crossing accidents**
- **Prevents derailments caused by switch malfunction**
- **Saves switches from damage caused by dragging equipment**

Automatically holds points in normally locked position—prevents wheels from "splitting" the switch—eliminates vandalism.

Simple, positive operation.

Write for complete descriptive literature.

THE RAILS CO.

Maplewood, N.J. 07040 • Omaha, Neb. 68102
Chicago, Ill. 60604 • San Francisco, Calif. 94105
In Canada: IEC-Holden, Ltd.

Circle 25 on Reader Service Card

Stop wire failure
Save space
Slash maintenance costs

Specify Harbour Industries Teflon* and Tefzel* HIGH PERFORMANCE WIRE AND CABLE for Transit Cars and Locomotives

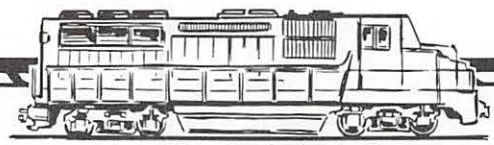
We offer over 50 combined U/L and CSA listed Teflon TFE*, FEP*, Kapton* and Tefzel* high temperature wire and cable insulations and constructions. Look at these features: up to 25% space saving • resists heat • non-aging • resists weather, moisture, chemicals • resists cut-thru, wear, flexing • overload protection, lowest dielectric constant and dissipation • superior to elastomers.

Off-the-shelf delivery of standards. Government approved test facilities. Application engineering. Wide range of special services.

FREE. Harbour Industries Handbook of High Temperature Wire and Cable. 50,000 in print. Send for yours.

HARBOUR INDUSTRIES, INC
Wire Division, Shelburne, Vermont 05482
Telephone (802) 985-3311

*Registered DuPont trademarks



Circle 26 on Reader Service Card

.....MANUFACTURERS REPRESENTATIVES WANTED.....

RAILWAY AGE is compiling a Directory of Manufacturers Representatives. Manufacturers, both national and international, in need of specialized representation frequently ask us for references. We would like to be able to give them your name.

So you may be a part of this important listing, please fill out and return to us the below:

NAME _____

PHONE _____

ADDRESS _____ (zip) _____

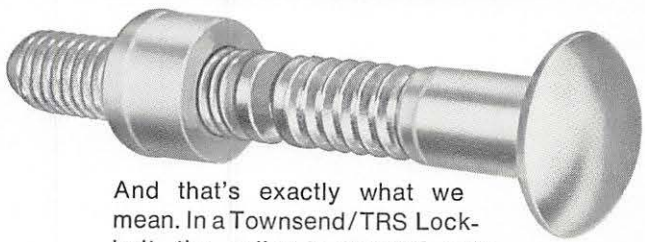
Area(s) of representation:

Mechanical _____ : M/W _____

SIGNALING _____ : TRANSIT _____

Directory of Manufacturers Representatives, Railway Age,
350 Broadway, New York, New York 10013

The Unshakeable Fastener



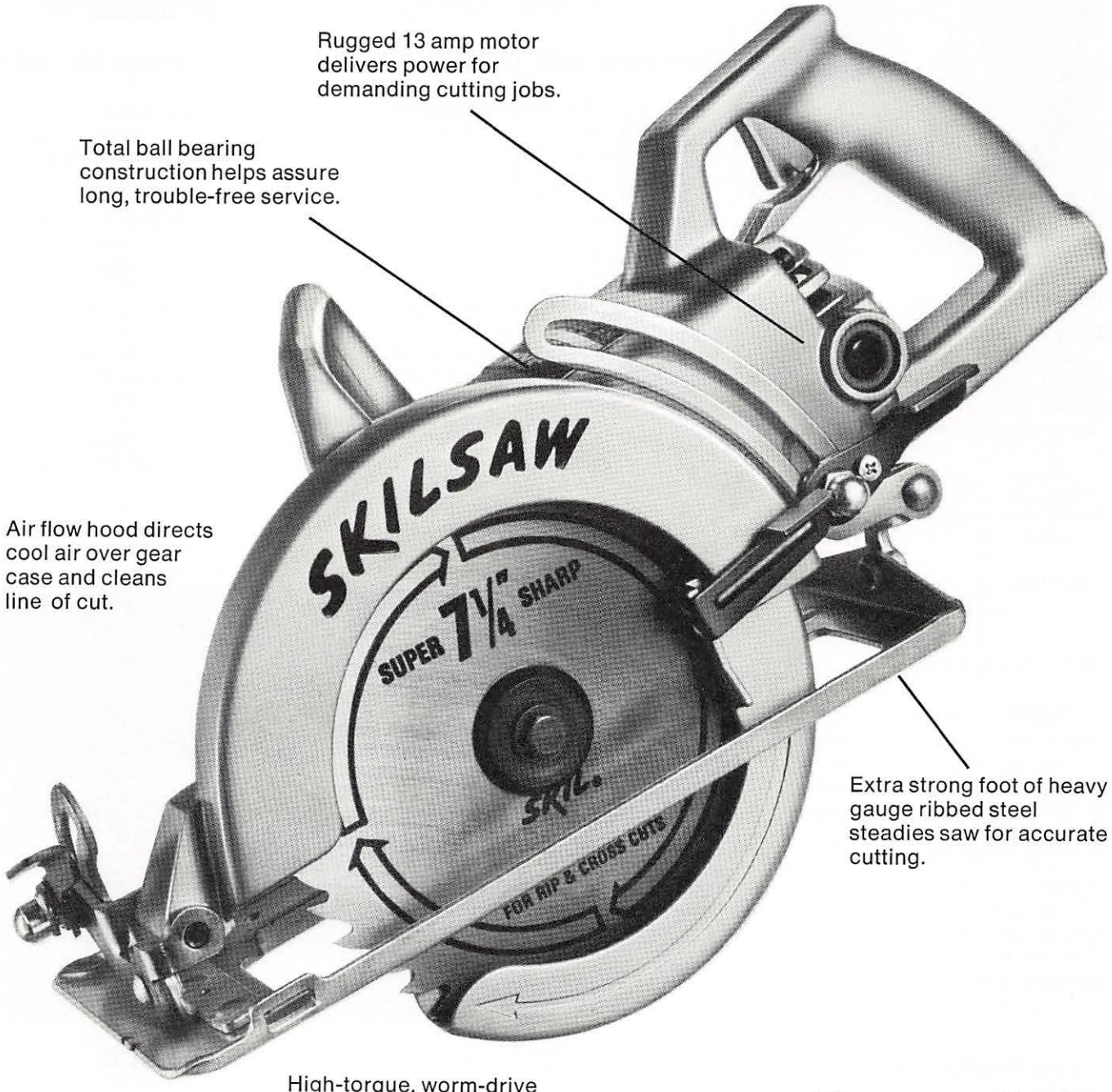
And that's exactly what we mean. In a Townsend/TRS Lockbolt, the collar is swaged right into the groove of the lockbolt pin. This forms a rigid permanent lock with constant tensile and shear values. No amount of vibration will loosen the joint. You've got to see it to believe it. Ask for a demonstration of this versatile unshakeable fastening system. Or write for new catalog. Lockbolts available off-the-shelf from 3/16"-7/8" diameters, in a variety of head styles.

TOWNSEND/TRS

DIVISION OF TOWNSEND A textron COMPANY
P.O. Box 71, Ellwood City, Pennsylvania 16117

Circle 27 on Reader Service Card

Worm-drive 77 Skilsaw®: The lumber, metal, concrete saw.


Rugged 13 amp motor delivers power for demanding cutting jobs.
Total ball bearing construction helps assure long, trouble-free service.
Air flow hood directs cool air over gear case and cleans line of cut.
Extra strong foot of heavy gauge ribbed steel steadies saw for accurate cutting.
High-torque, worm-drive gears produce fast cutting action in lumber, metal, stone, tough compositions.
SKILSAW
SUPER 7¼" SHARP
SKIL
FOR RIP & CROSS CUTS

SKIL®

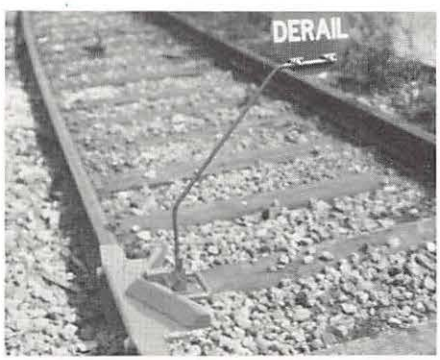
Circle 28 on Reader Service Card

Products Report

(Continued from page 56)

greater freedom of movement while preventing the air hose or hose coupling from dragging and becoming damaged. It can be applied in less than 12 minutes.

Circle 63 on reader service card



Portable derail fits all standard T-rails

The new PD Portable Derail is said to encompass all of the features of the permanent-type derail. Manufactured by Western-Cullen Division, Federal Sign & Signal Corp., the one size derail fits all standard T-rails and it installs in seconds. It will derail either to the right or left directions and can be padlocked. It weighs approximately 60 lb and is easy to handle. Eight styles of heavy-gauge flags are available.

Circle 64 on reader service card

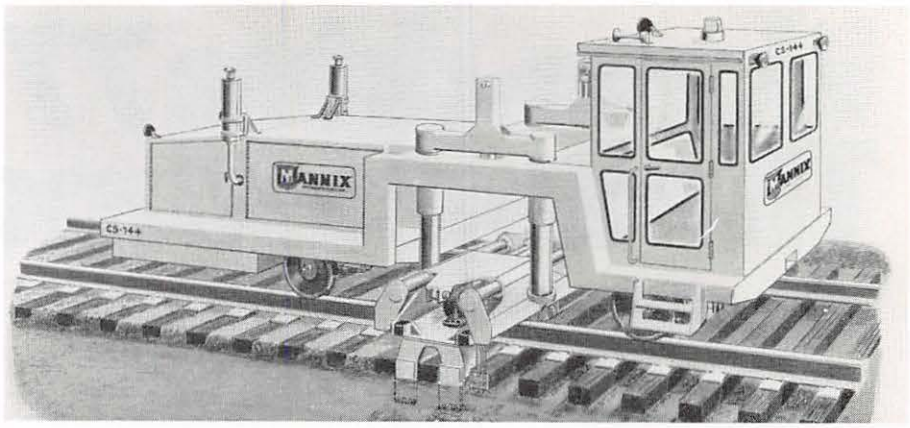
NEW LITERATURE

LUBRICANTS. A full-color brochure describing the performance of Caprinus T Oil in railroad engines has been published by Shell Oil Corp. Shell also has prepared a revised catalog featuring more than 70 products for railroad use. Caprinus T eliminates the need for routine oil changes in two-stroke diesels and permits intervals of a year or more in most four-stroke diesels in locomotive service.

Circle 65 on reader service card

CAB SIGNALING. General Railway Signal Co. has issued Bulletin 208, "Cab Signaling and Speed Control for Mainline Railways." The 15-page bulletin explains, with simplified diagrams, how the systems work and what they can do to improve railway operation.

Circle 66 on reader service card



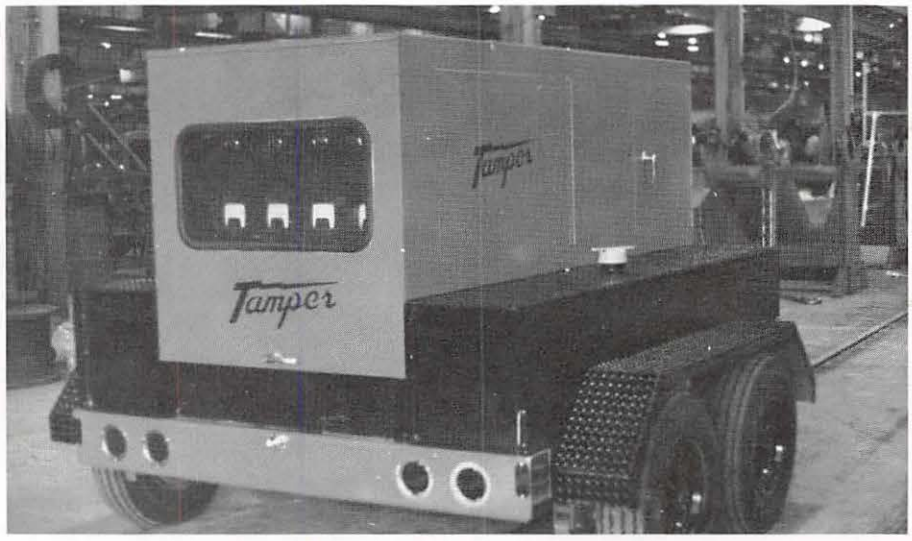
One-man unit removes fouled ballast from tie cribs

After several months of research and engineering design, Loram Maintenance of Way Division (formerly Mannix Construction, Inc.) has made its new Crib skeletonizer available. This unit is designed to solve the increasing problem of removing muddy crib ballast in an efficient manner. It dual cribbing heads permit two-crib operation to a maximum depth of 7 inches below the tie bottoms. An exclusive Loram vibratory dual head is said to provide a down pressure of 9,500 lb per side and a 2½-second cycle, with four to eight complete cycles required to fully remove the crib ballast.

Operated by one man, the Loram Crib Skeletonizer can travel to and from the job site at speeds up to 29 mph, forward or reverse. It is powered by a GMC Detroit diesel 6V-53 engine producing 140 hp continuously at 2,400 rpm. A 24-volt electrical system was selected for trouble-free operation of solenoid valves. The hydraulic components also were selected to provide a rugged, trouble-free system, and meet or exceed AREA Committee 27's proposed hydraulic specifications. The standard fuel tank has a capacity of 80 U.S. gallons and the hydraulic tank a capacity of 150 U.S. gallons.

The machine is of welded construction and high-strength and abrasive-resistant steel is used where required. The main frame is of unit-weld construction.

Circle 67 on reader service card



Takes electric power to where you want it

Tamper's Trailer-Mounted Generator Set is a rugged, heavy-duty machine designed to supply electric power to track-gang camp cars, emergency lighting for derailments, and tunnel work.

Features of the portable generator include a GM 4-53 diesel engine, a Tamper Synchronous 110/220-volt single-phase 60-kw generator, all mounted on an all-steel, heavy-duty 6-inch structural-channel frame trailer with 8.00 by 14.5, 12-ply tires and tandem axles. Electric brakes provide safe stops. Two 100-gallon fuel tanks are provided.

Circle 68 on reader service card

ELECTROMATIC TAMPER MARK I (with TORSION BEAM): Heavy duty high speed 16 tool, vibratory, drop and squeeze, production Tamper with semi-automatic operation.

UNSURPASSED in performance
UNCOMPROMISING in quality
UNQUESTIONABLY the best track maintenance machines in the business

ELECTROMATIC TAMPERS

SWITCH ELECTROMATIC TAMPER MARK I AND MARK II: The only 16 tool switch tamper on the market today that can lift and line a switch. Heavy duty, vibratory, drop and squeeze, production Tamper capable of tamping the entire switch area as well as all tangent and curved track.

ELECTROMATIC TAMPER MARK II: Heavy duty, high speed, 16 tool, vibratory, drop and squeeze, production Tamper with **fully automatic** precision control and one man operation.

ELECTROMATIC MARK II (with TORSION BEAM)

- Electromatic quality and reliability unsurpassed for over a decade.
- World-proven Electromatic tamping principle and vibrators.
- Best workhead design in the business. Unequalled Electromatic efficiency and quality.
- New advances in production speeds and simplicity of operation, but no loss or sacrifices made to the efficiency, quality, or the craftsmanship that has long been associated with Tamper products.
- All one man operations.
- With patented "Delta" surfacing system and Auto-Graphliner attachment, one man can level, line, and tamp, cross level and line curved track to pre-established curve ordinates.
- Being fully automatic, these systems eliminate chance of human error.
- Tandem operation gives "super-fast" production speeds with superb quality.
- The Electromatic Tamper with shoulder jacks is unbeatable in heavy construction.
- The Torsion Beam jacking and lining device (available for any Electromatic) gives "off the rail" jacking in an easy to maintain, compact configuration. (No stresses are applied to the basic machine frame).
- As with all Electromatics, the Torsion Beam incorporates high production speeds, easy operation, standard parts, and importantly, efficient and high quality work.

Tamper

HEAD OFFICE & PLANT
2401 Edmund Rd.
W. Columbia, S. C. 29169
803/794-9160

PLANT
171 Eastern Ave.
Toronto, Canada

PLANT, SALES & SERVICE
TAMPER (Australia) PTY. LTD.
15-19 Marshall Rd., Airport West
Melbourne, Victoria 3042
Australia, 338/3911

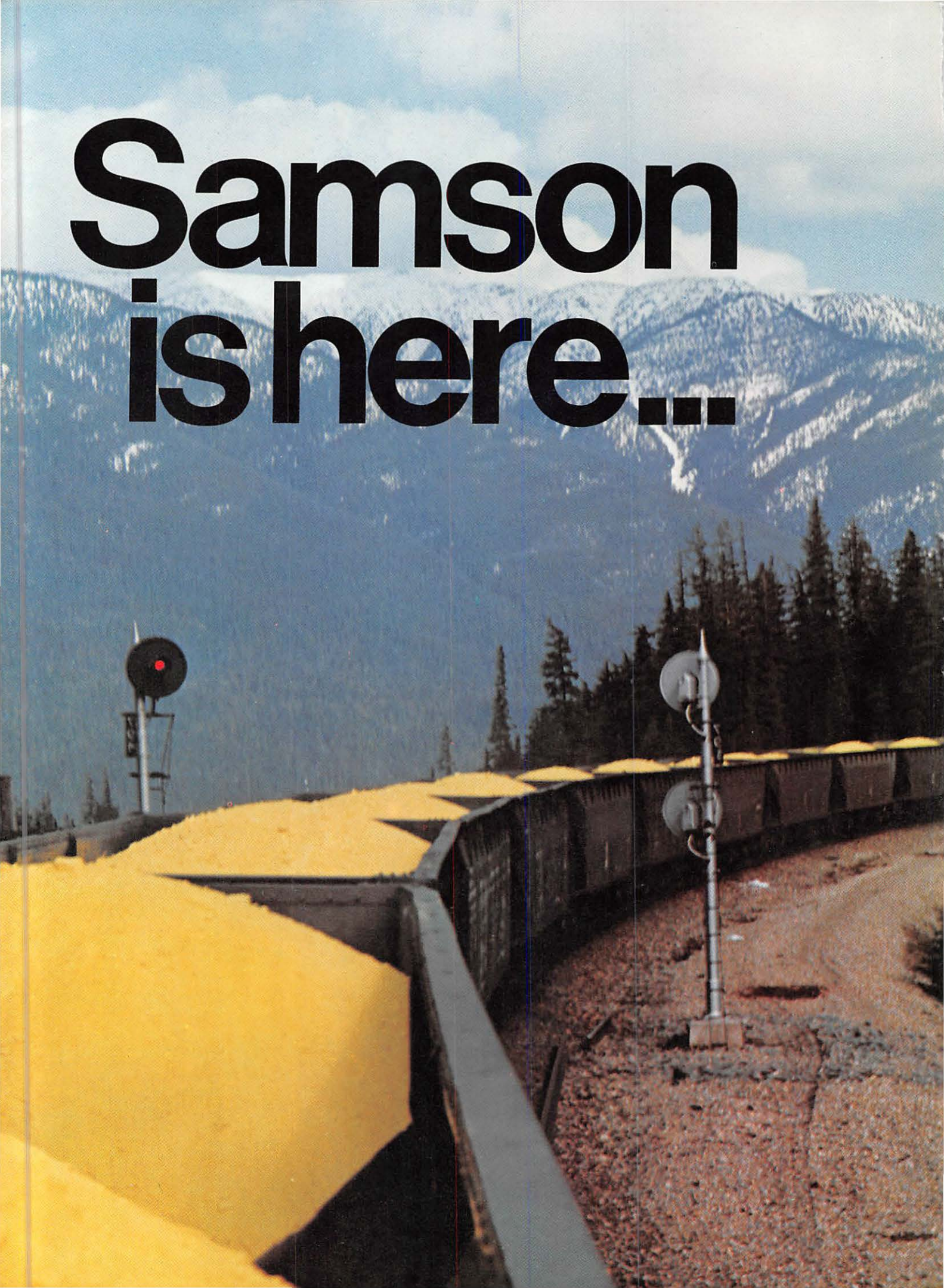
PLANT
160 St. Joseph Blvd.
Lachine (Montreal) Quebec, Canada
514/637-5531

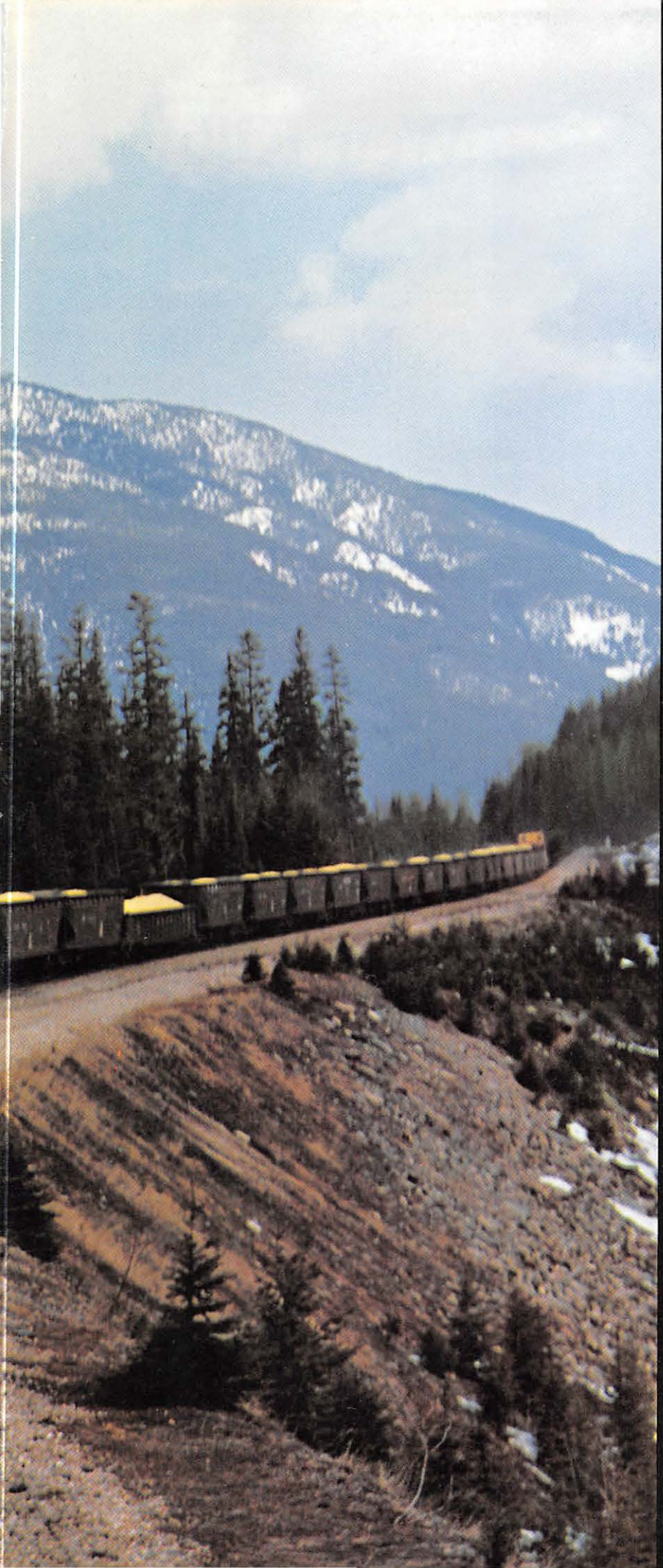
PLANT DEPOT
472 South Griggs
St. Paul, Minn. 55104
612/645-5055

IN EUROPE, ASIA, AND AFRICA contact
MATISA MATERIEL INDUSTRIEL, S.A.
Lausanne, Switzerland
Case Postal, CH-1001

Circle 29 on Reader Service Card

Samson is here...





to save $400,000 and set a new "standard" for CP Rail.

Canadian Pacific runs 70-car unit trains through rugged mountainous country in western Canada. They run loaded with sulfur or coal westbound and return empty on the 1400-mile round trip.

Brake shoe life, using regular cast iron shoes, averaged only three round trips over this rugged terrain. CP Rail decided to test Samson high-phos brake shoes to see if they could improve the life of their shoes.

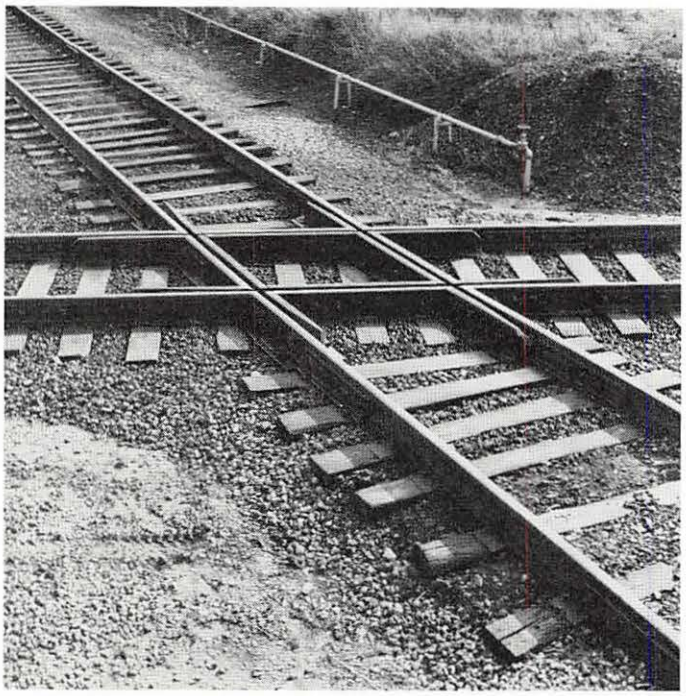
After running a two-month test, they found they could get over eight round trips out of the Samson shoes—at least twice the life. This extra shoe life, projected for the entire CP Rail system, would amount to a savings in material alone of close to $400,000. So CP Rail standardized on Samson for all of its freight-car metal shoes.

As an added bonus, train crews reported measurably better braking performance on the Samson equipped train.

You too can save both labor cost and shoe replacement expense by joining the 40 railroads which have standardized on high-phos brake shoes. You'll get longer life, better performance and dramatically reduced sparking. Call your Abex representative. He'll set up a freight test so you can prove to yourself that Samson can give you longer shoe life...whether you're climbing mountains or running over prairies.

Abex
CORPORATION
Railroad Products Group
VALLEY ROAD, MAHWAH, N.J. 07430

Circle 22 on Reader Service Card

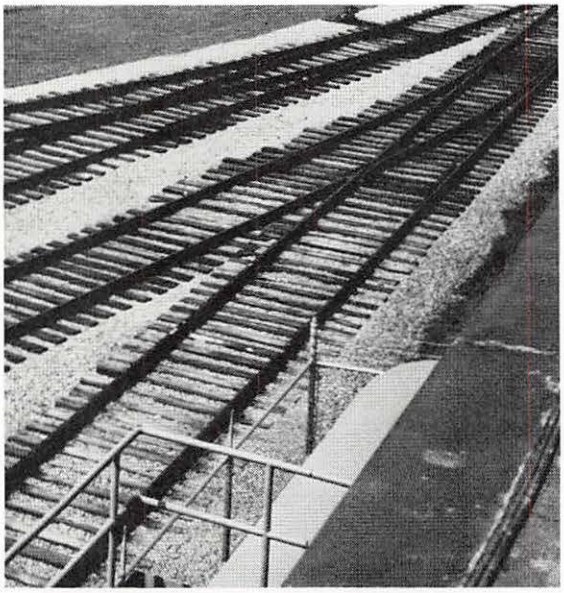


Weir Kilby

Makers of quality
frogs, switches, crossings
and specialty trackwork
since 1879.

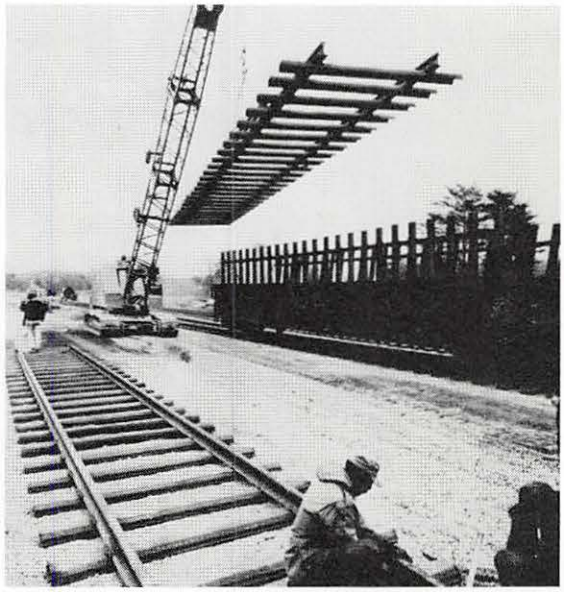
WEIR KILBY
A DIVISION OF FOSTER
L.B.FOSTER COMPANY

Weir Kilby, Division of L. B. Foster Company, 5038 Beech Street, Cincinnati, Ohio 45212



The Foster Line

Get a complete trackage package — from the most extensive rail warehousing facilities in North America. Foster stocks include: New and used rail: 12-lb to 175-lb • Angle bars • Tie plates • Spikes • Bolts • Frogs and switches • Gauge rods • Tools • Accessories



Fosterail FasTrak Panel Track

FasTrak is a completely preassembled panel, ready to lay with a simple bolting operation. Saves money and time. Available with new steel or conventional wood ties.

For more information, write L. B. Foster Co., Seven Parkway Center, Pittsburgh, Pa. 15220.

FOSTER L.B.FOSTER COMPANY
PIPE • RAIL AND TRACK • HIGHWAY PRODUCTS
PILING • CONSTRUCTION EQUIPMENT

Circle 31 on Reader Service Card

ACF's Center Flow car empties emptier.

The Center Flow® car discharges lading along its center line cleanly and quickly because there is no center sill to get in the way of unloading. The lading pours out in a rapid, unobstructed flow with no bridging or hanging up. That saves you time and therefore money. But there are other ways the Center Flow car can save you money too.

Since it empties fast and clean, shakers are seldom needed. So there's less chance of car damage. The Center Flow car has a "clean bore" interior with no internal carlines or stiffeners. That means linings last longer and lining maintenance costs go down. It also means that the car empties emptier, with less chance of residue from one load contaminating the next.

Center Flow cars come in a complete range of sizes from 2970 to over 5700 cubic feet. A big selection of hatch and outlet types makes them adaptable to any covered hopper task.

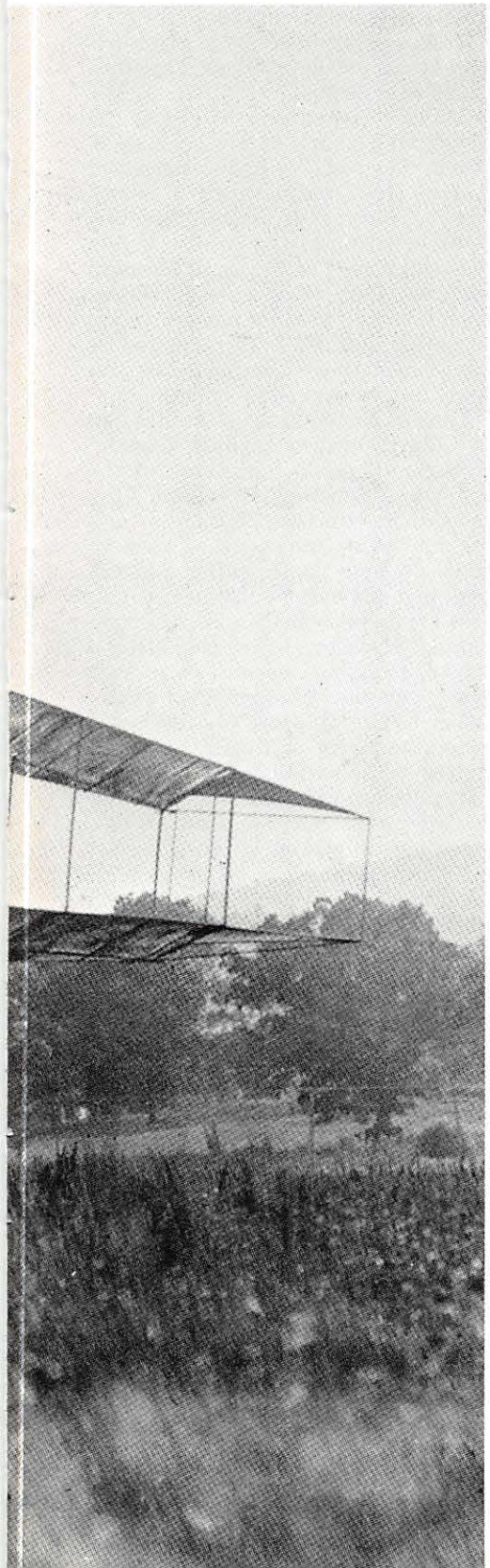
If you're thinking about new covered hoppers, talk to the ACF man about Center Flow cars. You get more out of them. ACF Industries, Inc., Amcar Division, Main and Clark Streets, St. Charles, Missouri 63301.

MEMBER RPI RAILWAY PROGRESS INSTITUTE

acf ACF INDUSTRIES

ESSAY No. 5 in a series

Glenn Curtiss flying his "June Bug" at Hammondsport, N.Y. in 1910



We'll go 500 mph in flying machines?

Then crawl into town on roads jammed with gas buggies?

Electric-powered carriages on rails will save the day?

Hey—you've been reading Jules Verne!

Speaking of prophetic travel writer Jules Verne *(Around the World in 80 Days, 20,000 Leagues Under the Sea, Voyage to the Moon),* what would that exemplar of French logic say if he surveyed our transportation scene today?

No doubt he'd find our huge jet-powered airliners admirable, as do we all. He'd relish the way landing planes taxi to their stations and are quickly coupled to covered passageways for deplaning passengers—or the way planes are met at Dulles Airport by huge mobile lounges that whisk passengers to the terminal.

He'd note with approval the way moving sidewalks help speed the landed passenger on his way to the terminal's exit, as at Newark, O'Hare and elsewhere.

But then he'd have trouble believing his eyes.

He'd see the passengers so recently hurtling through the air pile into buses, taxicabs and automobiles and *ooze* out into jammed roads and *crawl* into town.

"Jammed roads," alas, is the name of the game in today's ground transportation. But there's a way to beat the game. . .

If the ghost of Jules Verne were to land at Frankfurt, Germany, for example, the brain that conceived the mechanical harmonies of Captain Nemo's *Nautilus* would revel in the superb linkage of airport and central city.

Deplaning passengers descend to a rail transit station right under the terminal. They board a train on a 75 mph loop off the main Frankfurt-Mainz line. Eleven minutes later, they're in downtown Frankfurt. First class fare: 85 cents.

Verne would be pleased to find other airport access lines in Brussels and Cleveland. . .some sort of rail linkages in Tokyo, Vienna, Berlin (600 ft. short of the airport), Mexico City (15 blocks short). . .new airport lines building in Paris, London and Washington, D.C. . .lines planned for Hamburg, Stuttgart and Dusseldorf.

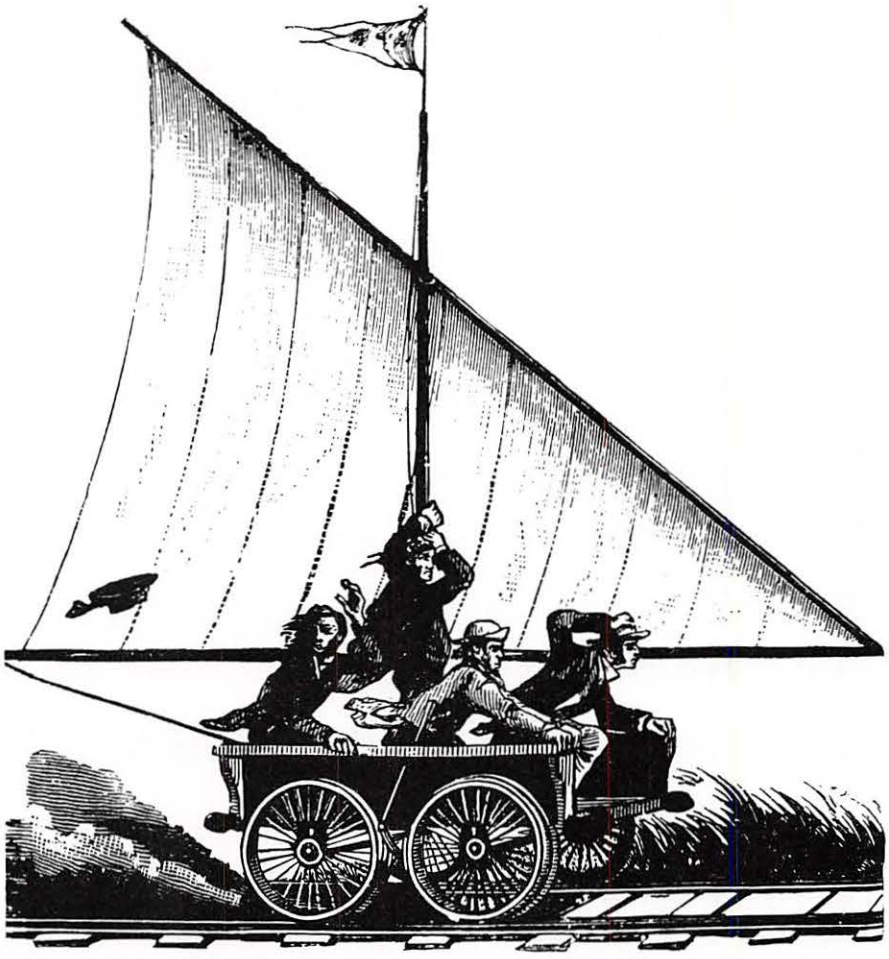
For as Verne would be quick to note:

1. Aerodynamic efficiency is only part of what today's airliners have going for them. *Freedom from cross traffic at grade level* is perhaps an equally basic advantage.

2. Only rail transit has freedom—or virtual freedom—from cross traffic on the ground. . .traveling on its own right of way, going elevated or underground as indicated.

Truly, rail transit is the missing link in air travel between cities today—the link that can prevent getting to the airport from taking up to as much time as flying to another airport hundreds of miles away.

—George Dusenbury



Commitment

Railroading is a special business
that we believe we serve especially well
by furnishing high quality, economical, forged car parts.
We've been doing that for more than 60 years.

We also believe that time, 60 years of it,
is a measure of our commitment to the railroad industry.
It's a commitment that has been tested often
through weak and strong economic times.

We intend to continue applying our full resources
to that commitment and to the needs of the railroads.

We wouldn't have it any other way.
We don't think you would either.

It's our commitment.

Schaefer

Schaefer Equipment Company, Phoenix Road, Warren, Ohio 44483

Circle 32 on Reader Service Card

Update on USSR

By KENNETH ELLSWORTH
Mechanical Editor

Soviet railroads, operating on an 81,000-mile network, carry more than 75% of all freight moved in the USSR—an area about 2⅓ times as large as the United States. The U.S. railroads move 40% of our nation's freight on 200,000 miles of line.

This statistic was one of the reference points for observations made by a group of Westinghouse Air Brake Co. (WABCO) executives who visited the Soviet Union early this year. C. Benjamin Ramsdell, vice president of WABCO'S Transportation Systems Group, reports, "It appears the Russians have copied the American railroad technology rather than European systems. They have a good railroad operation, and are in a modernization cycle. The World War II equipment we saw demonstrates the reliability and long life of our signaling equipment."

Lack of competition in the Russian milieu was evident to Jack Cannon, manager of product planning of the company's Air Brake Division. "Because there is no competition for better railroad equipment, they seem to make do with inadequate equipment until new and better equipment standards are urgently demanded," Cannon reports. He learned that they have a shortage and deficiency of good draft gears. Of Soviet marshalling yards, Glenn E. Stinson, vice president and general manager of WABCO's Union Switch & Signal Division, observes, "They lose considerable time through wasted effort." His opinion is that over-the-road operations are efficient.

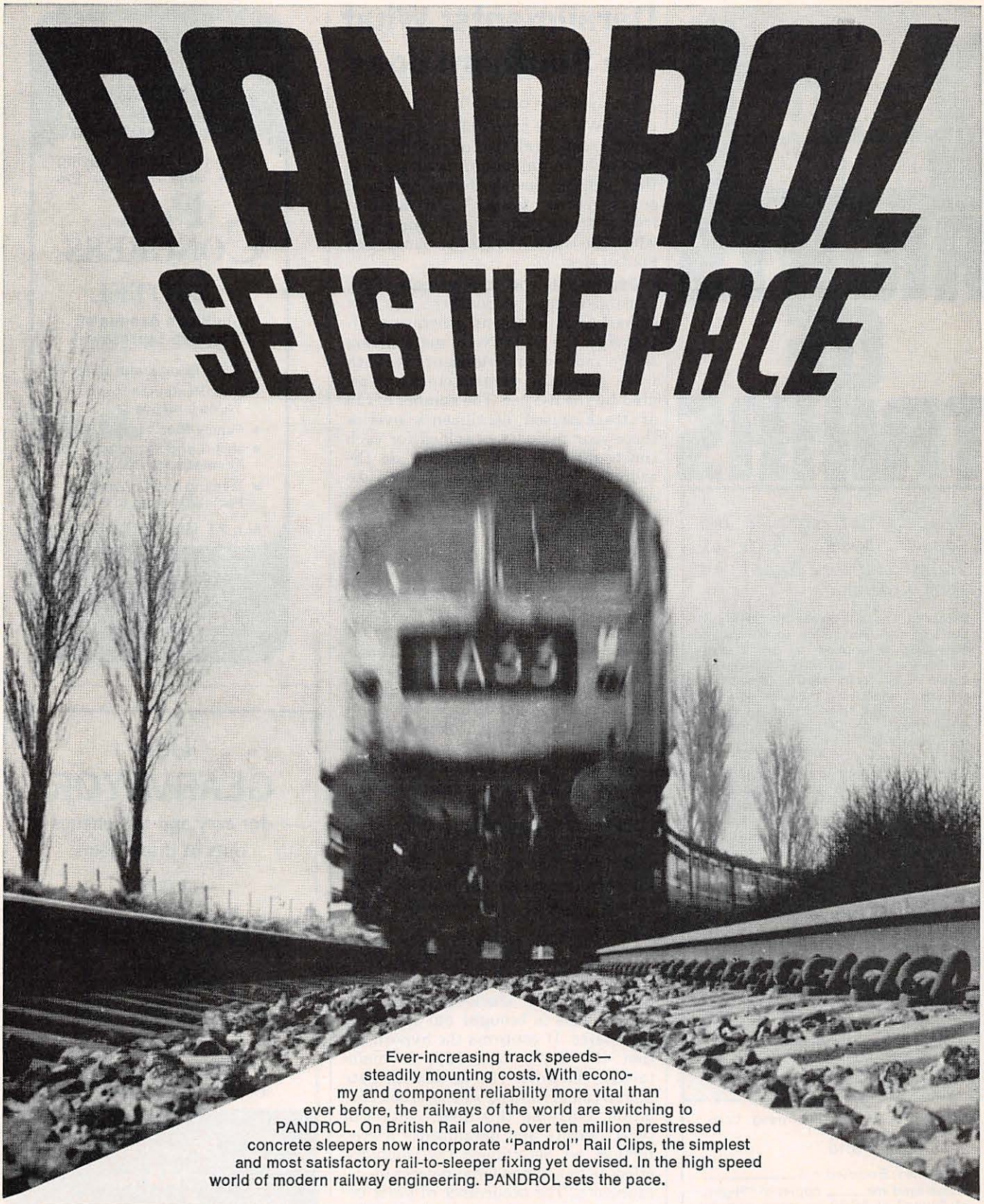
"They are doing a good job with rapid transit," Stinson adds. Five to six million commuters ride the 2,300 cars on Moscow's 84-mile system on a work day, compared with fewer than four million on the 6,700 cars in New York City's 232-mile system.

The Americans report the Russians are trying to boost the normal 80-ton payload on their freight cars, moved mostly on four axles. Their train braking systems are geared for 50- to 60-car trains.

Signals, switches and other railroad products made by WABCO were sent to Russia under lend-lease in WW II. Hence, the question arises: How about new business from the Soviets?

"We wouldn't turn any down," is Ramsdell's comment, but "the prospects aren't that great. We wouldn't be selling them products, although there might be a market for technology."

PANDROL SETS THE PACE



Ever-increasing track speeds—
steadily mounting costs. With econo-
my and component reliability more vital than
ever before, the railways of the world are switching to
PANDROL. On British Rail alone, over ten million prestressed
concrete sleepers now incorporate "Pandrol" Rail Clips, the simplest
and most satisfactory rail-to-sleeper fixing yet devised. In the high speed
world of modern railway engineering. PANDROL sets the pace.

For more information call or write today!

Pandrol Limited, United States Branch

P.O. Box 7845, Pittsburgh, Pa. 15215 412 781-2306

"Pandrol" is the registered trademark of Pandrol Limited, London, England.

Circle 33 on Reader Service Card

BACK BY POPULAR DEMAND

RIGHTS OF TRAINS

We have just reprinted the popular book, Rights of Trains (Fifth Edition) by Peter Josserand.

Rights of Trains analyzes the Standard Code of the Association of American Railroads as applied to single and double track. In this Fifth Edition, the author sets forth clearly the basic principles underlying the rules, and has shown how the rules of various roads differ from the Standard Code and from each other.

Rights of Trains completely explains and illustrates train-rules, train-orders, and transportation problems of the Operating Department of any American railroad. Rules regarding Block Signaling, Interlocking, and Centralized Traffic Control are also fully covered.

Rights of Trains provides assistance to those studying train operating rules, by clarifying the meaning of the cryptic rules which railroads expect employees to memorize, or learn by rote.

Rights of Trains is a "must" for the trainman who faces a rules examination. Operators who aspire to become dispatchers will find in it the fine points of train rules.

Order your copy today!

Simmons-Boardman Publishing Corp.
508 Birch St.
Bristol, Conn. 06010

Gentlemen: Enclosed is $_____
Please send me ____ copies of "Rights of Trains" at $6.95 per copy, postage included. I understand I may return books for full refund within 10 days if not delighted.

Name _____

Address _____

City _____

State _____ Zip _____

Derailments: What the Southern does

(Continued from page 53)

track. We were then able to determine the amount of rail that ought to be laid each year. A rail-laying program was then laid out for the following six to seven years, taking into account freight traffic density, rail condition, when the track was last surfaced, and kind of steel."

- **Derailments and track defects.** Tuve explained that the Southern has now embarked on a "second generation" effort with the objective of determining the correlation of derailment rate with track geometry parameters as measured by the R-1 car. The number of rail or track-caused derailments over a three-year period was tallied for each consecutive ten-mile segment on the railroad. The correlation between derailment concentrations and the presence or absence of priority occurrences was established.

Results revealed that segments with alignment occurrences, gauge occurrences and twist occurrences had significantly higher numbers of derailments than those in which these priority conditions did not prevail. "This is in spite of the fact," said Tuve, "that our operating procedure, which is enforced, calls for correction of the priority condition within 30 days of detection."

Another study, still under way, is an analysis of the correlation of less severe occurrences with derailments. "Due to the substantially higher density of the less severe occurrences," said Tuve, "we are able to determine the correlation of each individual parameter density with derailment frequency."

"Preliminary results of this study reveal, for example, a very high correlation of twist occurrence density with both rail and track-caused derailments. This is brought out in one of the charts. It confirms the hypothesis that the better the track is maintained, the lower the derailment rate due to rail defects as well as track condition. Carrying this investigation of twist defects and derailments a step further, we determined the combined effect of gauge and twist defects on derailments. The occurrence of twist defects appears to have a greater influence on derailments than open gauge occurrences.

"Certainly there are many unanswered questions regarding track defects and their effect on track-related derailments, and I emphasize the importance of continuing these studies and refining preliminary results to better understand the interaction of track on train dynamics." ■

RAILROAD CONVENTION HQ. in CHICAGO

Enjoy real money-saving value, and relax at the

PICK CONGRESS HOTEL

Michigan Avenue at Congress Expressway

- 1,000 Rooms with Color TV
- Four Restaurants and Three Lounges
- Family Plan
- Near Loop Shopping, Theaters and Offices
- Meeting and Convention Facilities for up to 2,000

ALL AT MODERATE RATES

RESERVATIONS:
CALL TOLL FREE
800-621-4404
In Illinois: 800-972-7200

Use
GEARVEYOR
for easy and fast change outs of draft gears
and
TRUCK REPAIR BEAM
for quick set up for truck repairs —
portable with two men.
In Use on 13 Railroads.

Please write for brochure

VIRGINIA SUPPLIERS, Inc.

3213 Lanvale Ave.
Richmond, Va.
23730

Circle 34 on Reader Service Card

new track records for '75

30% Fleet Expansion In 2 Short Years.

FOUR NEW CARS TO BE BUILT IN 1975, JOINING THE 22 CARS CURRENTLY IN SERVICE.

More Testing Miles Scheduled Than Ever Before.

WELL OVER 200,000 MILES OF TRACK IN NORTH AMERICA WILL BE CHECKED BY SPERRY CARS.

Our 6 Millionth Mile Post Will Pass By In '75.

MARKING FORTY-SEVEN YEARS OF CONTINUOUS, SUPERIOR, RAIL-TESTING SERVICE.

AUTOMATION INDUSTRIES, INC.

SPERRY RAIL SERVICE

SHELTER ROCK ROAD
DANBURY, CONNECTICUT 06810 U.S.A.
(203) 748-3581

Serving the railroad industry with the ultimate in rail flaw detection technology.

Circle 35 on Reader Service Card

USRA's big, bold master plan

(Continued from page 23)

26—Syracuse, N.Y.; Scranton, Pa.; Akron, Ohio; Erie, Pa.; Fort Wayne, Ind.

—On April 27, RSPO will present its evaluation of the plan to USRA.

—On July 26, USRA will send a Final System Plan to Congress.

The Final System Plan is to become effective after 60 days of continuous sessions of Congress, beginning July 26, if neither the House nor the Senate disapproves the plan. ConRail, says USRA, is expected under the present timetable to become operational "early in 1976."

There is, however, mounting sentiment among some highly-placed Washington observers for speeding up the timetable. They would like to see ConRail start up as an operating entity sometime this fall. The reasoning, as one of them puts it, is this: "The new $347 million in emergency money which Congress has just voted won't take the Penn Central beyond next September or October. They they'll have to come back to Capitol Hill rattling their tin cups—and Congress is not likely to be in a mood to dole out new millions to a thoroughly discredited organization. If, on the other hand, Congress is asked to make new interim funds available to a brand new company, starting out with a clean slate, the task may be easier."

A search is already under way for a ConRail chief executive officer. By one job description, "He must be a railroad man, and he must be just about the best in the business—though not necessarily the best known."

● **Will it work?** Reactions to the Preliminary System plan have varied widely—and predictably.

"Utterly unacceptable," said New York Gov. Hugh Carey. What he found "unacceptable," was the possible abandonment of trackage serving some of his constituents.

Also pessimistic—though for other reasons—was the not-for-attribution view of one highly respected transportation writer, who observed, "It's a great plan, probably the most sensible that could have been devised, but I don't think it's going to work because (a) I can't see the NW and the Chessie coming in on terms that Congress will buy, (b) some politicians won't let a mile of branch line go without a fight, (c) the Northeast 'disease' is now spreading to the Midwest, and therefore the rescue operation is obsolete before it can begin, and (d) I think that very soon a lot of Congressman will start to figure that the best answer, and maybe the cheapest answer, is to start the machinery of nationalization in motion."

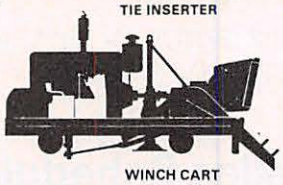
At the other extreme was the reaction of a veteran Washington lobbyist who in the past has been more often right than wrong in probing the mood of Congress: "I think this plan, or a variation of it, is going to work because it has to work. The alternatives are to shut down vast segments of our railroad system, which would cause our economy to collapse and is therefore unthinkable, or to go for government ownership, which every informed person in Washington knows would cost 10 times what USRA's plan will cost, and which would still leave the taxpayers with enormous operating deficits to pick up."

Chessie had no immediate comment. NW President John P. Fishwick was not optimistic that the plan would work without great continuing injections of Federal aid. As for his own road's involvement, Fishwick said: "In 1968 we were forced by the Interstate Commerce Commission to acquire the Erie Lackawanna for about $55 million in Norfolk & Western stock on findings that the railroad could be made profitable. We could not make it profitable and have lost most, if not all, of our investment. To ask us to voluntarily take over what is probably the most unprofitable part of the Erie is not an attractive proposition to us." ■

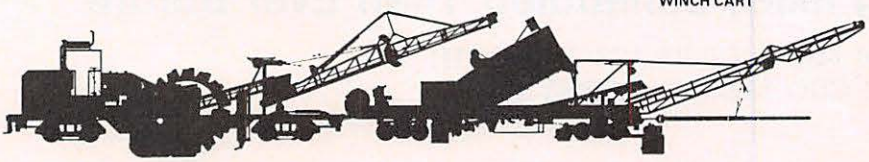
LORAM

Modern Maintenance of Way Equipment with an **established track record...**

TIE INSERTER

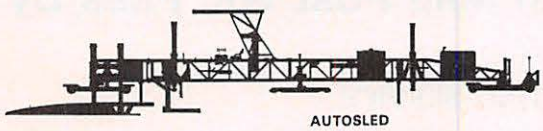


WINCH CART

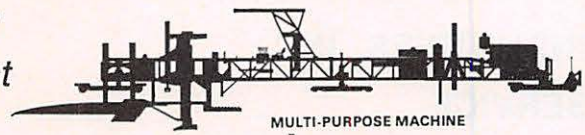


SHOULDER BALLAST CLEANER

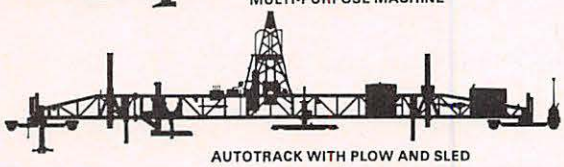
...designed to do the job easier, quicker and at less cost — with your men or ours!



AUTOSLED



MULTI-PURPOSE MACHINE



AUTOTRACK WITH PLOW AND SLED

THE ANSWER TO YOUR 1975 TRACK REHABILITATION PROGRAM

MEMBER RPI RAILWAY PROGRESS INSTITUTE

LORAM RAILWAY MAINTENANCE EQUIPMENT FOR:

• Shoulder Ballast Cleaning • Raising Track • Resurfacing • Reballasting • Replacing Ties • Undercutting • Ballast Cleaning • Rail Grinding Single or Multiple track—Mainline or Yard tracks

CONTRACT, SALE or LEASE

FOR FULL DETAILS, OR SHOWING OF OPERATING FILMS, WRITE OR CALL TODAY

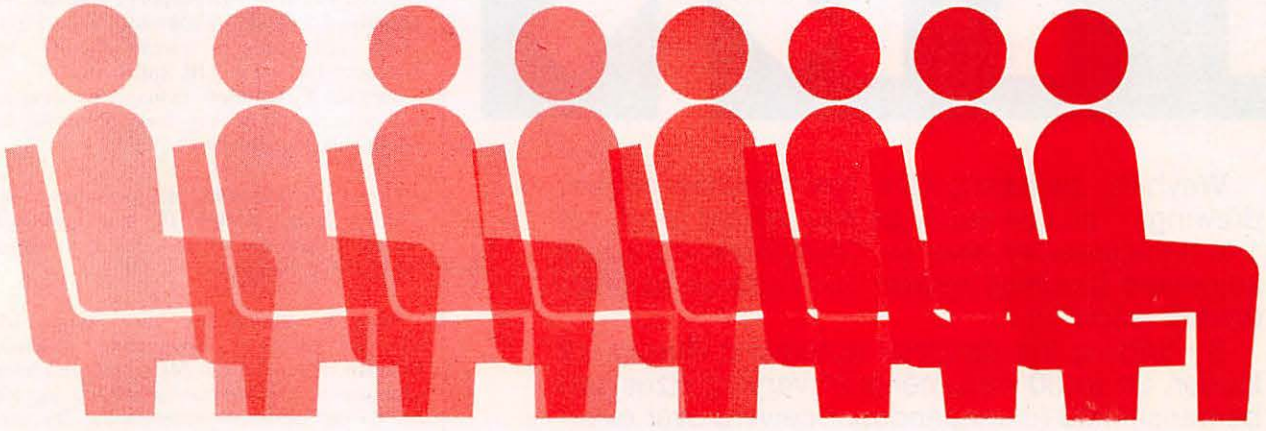
LORAM CONSTRUCTION INC.

MAINTENANCE of WAY DIVISION

3900 Arrow Head Drive
Hamel, MN 55340 U.S.A.
Phone (612) 478-6014
Telex 29-0391; Cable, LORAM

Circle 36 on Reader Service Card

Porter powers transit



Moving people quickly, efficiently and comfortably is the continuing objective of the transit industry . . . now and in the years ahead. As transit systems become more elaborate and sophisticated they will require electrical power systems equally advanced. Porter has been part of the transportation industry since the days of the first electric streetcars. We offer the knowledge, experience and skill to meet the electrification requirements encountered in today's fast changing transit technology.

Whether it's concepts or products . . . look to Porter for help in electrifying your transit designs. Contact Electrical Division, H. K. Porter Company, Inc., Porter Building, Pittsburgh, Pa. 15219.

BETTER PRODUCTS BY DESIGN

PORTER

Porter Electrical Division supplies Electric Utilities, Transit and General Industry with Switches, Isolating Circuit Breakers, Substations, Bus and Metalclad Products, Cable Accessories, Pole, Pad and Station Type Transformers, Current Collecting Systems and Components, Metal Trim, Fans, Blowers and Special Motors.

Circle 37 on Reader Service Card

James A. McDivitt
Pullman

C. Cecil Zimmerman
Standard Steel

George H. van Sciver
Abex

Thomas R. Elmblad
Whiting

Suppliers

James A. McDivitt has been elected vice president, **Pullman Incorporated,** effective Apr. 1, with corporate responsibility for the **Pullman-Standard division.** Mr. McDivitt has been executive vice president, **Consumers Power Co.,** Jackson, Mich., since 1972 when he retired as an Air Force brigadier general. He was a **NASA** astronaut and has been manager of the Apollo spacecraft program.

Kenneth G. Meuser, Jr., has been named director of government relations for Pullman, a new position, with headquarters at Washington, D.C. He was formerly assistant director, Federal relations, **TRW Inc.**

George H. van Sciver has been appointed manager-marketing, Railroad Products Group, **Abex Corp.,** Mahwah, N.J. He was formerly sales representative at the division's Philadelphia office.

C. Cecil Zimmerman has been named president, **Standard Steel Division, Titanium Metals Corp. of America,** Burnham, Pa. Formerly vice president for operations, Zimmerman succeeds **Graemer K. Hilton,** who has been executive vice president, **Consumers Allegheny Ludlum Industries, Inc.,** Pittsburgh. Titanium is owned jointly by Allegheny Ludlum and **NL Industries.**

Stephen F. Madden, manager of services and administration, has been promoted to vice president-operations.

Thomas R. Elmblad, vice president-sales, **Whiting Corp.,** Harvey, Ill., was appointed president upon the retirement of **J.A. Handley** on Feb. 1.

Peter B. Clarke has been named advertising manager, **Trailmobile division, Pullman, Inc.,** Chicago. Mr. Clarke has been assistant to the director of advertising for the parent company since joining the corporation in 1970.

Tom W. White has been named manager, marketing research, **Nordberg Machinery Group** of **Rexnord Inc.,** Milwaukee. Previously he was supervisor, marketing research.

John K. Ford, director-corporate computer services, **Rohr Industries, Inc.,** has been promoted to vice president-management systems and controls, succeeding **Thomas J. Bernard,** appointed vice president and general manager, **Flxible Co.,** Rohr's Ohio-based bus manufacturing subsidiary. Mr. Bernard succeeds **Joseph N. Kemple,** resigned.

Fred W. Garry, president of Rohr, recently announced a reorganization of the ground transportation activities. The Rail Division under **Raymond A. Raffensberger,** vice president, and the Flxible Co. under Mr. Bernard, will report directly to Mr. Garry. The Advanced Transportation Systems Division under **Walter J. Hesse,** vice president, will report to **Keith W. Tantlinger,** senior vice president, New Product development. The groups previously had reported to a group vice president, Transportation Systems. The reorganization followed the resignation from that position of **N. John Beck,** who has left the company to pursue other business interests.

FAX

Waybills, switching lists, maintenance orders, drawings—all can easily be transmitted locally at 1 to 3 minutes per page on Copyphone—a totally automatic facsimile system from turn-on to unattended receiving.

By adding the optional automatic document loader, up to 50 documents of varying sizes can be transmitted to unattended receivers over existing telephone lines, microwave, or radio. Received copies are automatically cut to the same size as the original. A wide variety of facsimile papers are available to fit your specific system.

This speedy and accurate method of transmitting essential information requires no trained operators and eliminates errors common with voice communications.

Send now for free information on Copyphone.

Telautograph Corporation, 8700 Bellanca Avenue
Los Angeles, California 90045 213-776-5022

NAME TITLE

COMPANY

ADDRESS

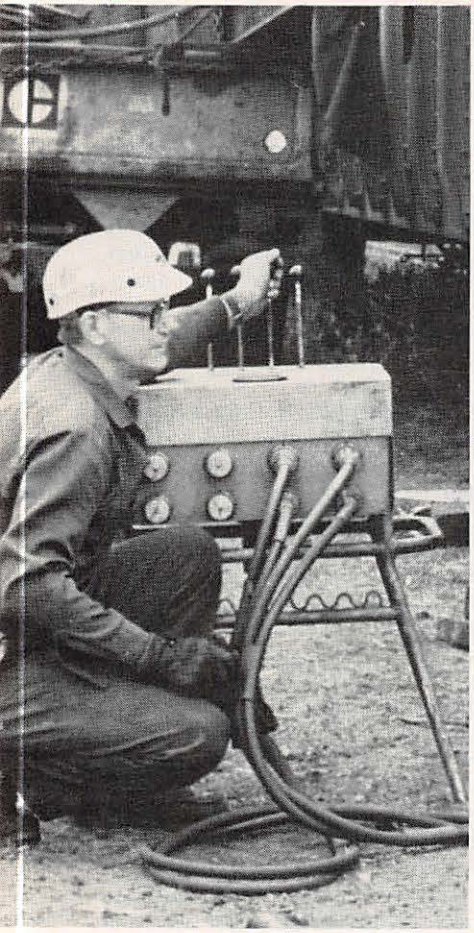
CITY, STATE, ZIP

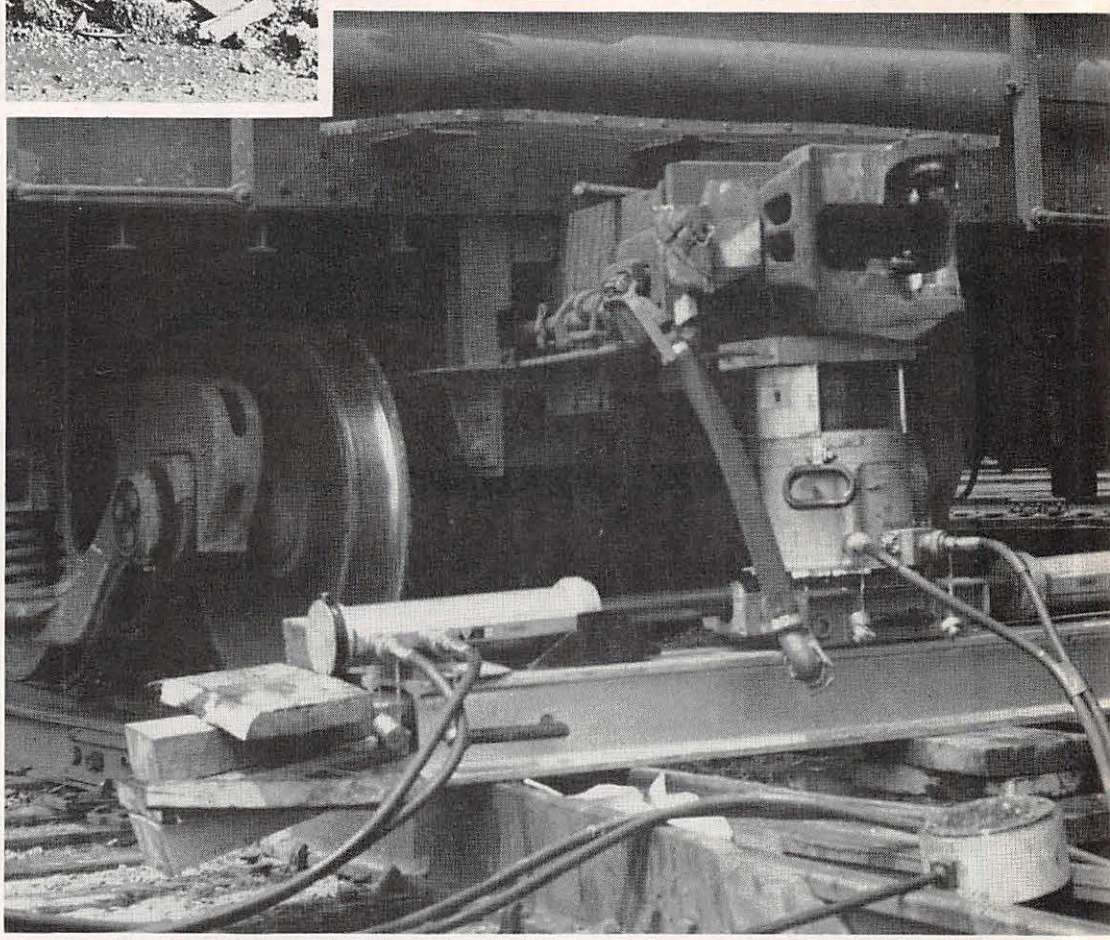
PHONE

Telautograph copyphone

Circle 38 on Reader Service Card

RE RAIL!





Hoesch rerailing system solves problems fast... without crane...and returns investment quickly!

Most loaded car or locomotive derailments can be handled in about 30 minutes with a simple, lightweight Hoesch rerailing system and a small crew. No need for you to spend the time, labor and money to send an expensive wreck crane. The Hoesch system has its own power source. It uses a uniquely designed control desk where one man can operate as many as four hydraulic jacks simultaneously. Hoesch jacks range up to 132-ton lift capacity. Light, superstrong beams straddle the rails and smooth hydraulic power moves the load sideways on rollers and back on the track... fast and safely! It's almost that simple. Railroads throughout the world have proved the time and money-saving advantages of Hoesch rerailing systems. Comparatively low initial cost means you get a fast return on your investment. Leasing is also available. An actual demonstration can be arranged for you at no obligation. Write or call today for our new brochure.

751

225 Peachtree Street, N.E., Atlanta, Georgia 30303 • Phone 404/688-9171

HOESCH AMERICA

Other Hoesch products include • hydraulic wheel presses • pit-type wheel lathes • numerical wheel set measuring stands • heavy-duty wheel lathes • journal turning and grinding machines • turntables and transfer bridges

Circle 39 on Reader Service Card

Bookshelf

WHEN THE STEAM RAILROADS ELECTRIFIED, by William D. Middleton. Commander Middleton is no stranger to readers of Simmons-Boardman publications. When Railway Age's companion publication IRJ (International Railway Journal) started publishing in 1960, Middleton was a contributor, and has been ever since. In fact, he has a by-lined feature elsewhere in this issue of Railway Age, appropriately on the subject of electrification.

"When the Steam Railroads Electrified", a chronicle of railroad electrification in the United States, completes Middleton's "traction trilogy" (earlier volumes were "The Interurban Era" and "The Time of the Trolley".) The new volume brings together, probably for the first time, all of the important ventures into electric traction from B&O's Baltimore tunnel "challenge to steam" in 1895 to the startup of the Black Mesa & Lake Powell just three years ago. Each electrification project is described in a brisk yet scholarly style that makes you want to keep reading, and wishing there were more.

Especially you wish there had been more electrification, and you wonder why there has not been when you read how successful nearly all of the electrifications were in meeting the transportation requirements for which they were designed. A wrap-up chapter tells why.

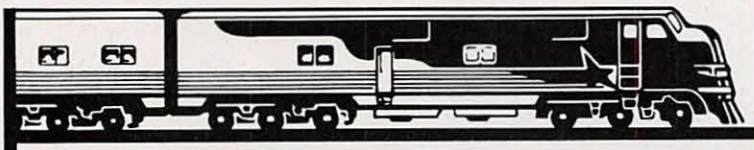
"When the Steam Railroads Electrified" should prove a useful reference source, as well as informative and entertaining reading, at a time when "steam railroad" electrification might—just might—be in the threshold stage again. Price, $30. 400 pp. Kalmbach Books, 1027 N. Seventh St., Milwaukee, Wis. 43233.

ALL ABOARD WITH E.M. FRIMBO, By Rogers E.M. Whitaker and Anthony Hiss (Grossman Publishers, 625 Madison Ave., New York, N.Y. 10022, $8.95). One Sunday morning just 34 years ago, while in the employ of the Pennsylvania Railroad at Cleveland, I boarded train number 374 at Harvard Avenue station to enjoy the day with friends at Pittsburgh. Entering the dining car, I spotted Rogers Whitaker, stoking up on bacon and eggs. "Rogers," I exclaimed, "what puts a New Yorker like you on a Cleveland to Pittsburgh train on a dull Sunday morning?" It wasn't a dull morning, he allowed, for in less than an hour he would be traveling over 8.2 miles of trackage from Newton Falls to Niles Junction over which he had not ridden before. That was the purpose of his trip out by sleeper on New York Central's Cleveland Limited the night before. He would journey back to New York on The Duquesne, completing a nearly non-stop circuit of 1,004 miles—to add 8.2 miles of new line!

That, in part at least, is what his book, "All Aboard with E.M. Frimbo," is all about, for none of the entertaining, often exciting, episodes Rogers Whitaker, alias Frimbo, enjoyed throughout his lifetime would have been likely without that passion to "add new miles." Nor would his witty book ever have been written with its many between-the-lines truths about this fascinating railroad business.

Travel with Frimbo aboard Metroliners, and French Turbos, and Central American narrow gauges; enjoy his inimitable, entertaining and always stylish use of the English language.

Pure, good, entertaining reading. Makes you want to get on a train. And urges you to do so. **—Robert G. Lewis**



Energy crisis and environmental concerns focus attention once again on railways for "safe and rapid mass transport of people and goods."

JANE'S WORLD RAILWAYS 1974-75

Edited by Paul Goldsack

With environmental protection playing an ever-increasing part in modern life, the nearly pollution-free railways are once again receiving serious consideration as a major transportation force. New developments have emerged in many areas: rapid transit passenger rail systems; high-speed inter-city passenger services; "run-thru" freights—the bulk movement of freight in complete train loads from point of origin to destination; movement of containers and highway vehicles; experimental "people-mover" systems. You'll find the latest information on all of them—and much more-in the new JANE'S WORLD RAILWAYS.

Recognized throughout the world as the invaluable reference book for railway manufacturers, engineers, enthusiasts, and all concerned with surface and underground rail transport, the new JANE'S WORLD RAILWAYS offers detailed coverage of every major railway system in the world—and over 1,400 minor ones! Separate sections deal with the manufacturing industry, with comprehensive information on locomotives and rolling stock, signalling devices, diesel engines, containers, and track maintenance equipment.

You'll find accurate and up-to-date information on every aspect of the railway industry chronicled in the new JANE'S WORLD RAILWAYS. Facts based on information supplied officially, as well as data from unofficial but authoritative sources throughout the world.

Only in JANE'S. Only in the latest edition of JANE'S WORLD RAILWAYS. Order your copy of the 1974-75 edition, today. 700 pages. 8-3/4 x 12-3/4. Over 1,000 photographs, maps, and diagrams.

JANE'S

A Division of Franklin Watts, Inc.
730 Fifth Avenue
New York, N.Y. 10019

202

JANE'S U.S.A.
A Division of Franklin Watts, Inc.
730 Fifth Avenue, New York, N.Y. 10019

Please reserve _____ copies of JANE'S WORLD RAILWAYS at $65. (add sales tax where applicable)

10% BONUS SAVINGS*
when you order 2 or more JANE'S reference books.

Other 1974-75 titles of interest:
_____ Jane's Freight Containers at $65
_____ Jane's Surface Skimmers at $40
_____ Jane's Major Companies of Europe at $60
_____ Jane's all the World's Aircraft at $65
_____ Jane's Fighting Ships at $65
*Deduct 10% from your check or charge if your order is for two or more titles.

☐ Check or Money Order enclosed
☐ Bill my company (attach letterhead if different from shipping address)
☐ Bill my credit card:
☐ Bank Americard ☐ American Express ☐ Master Charge (Inter-Bank _____)

No. Exp. date

Signature
(Not valid unless signed)

SHIP TO:

Name

Affiliation

Address

City

State Zip

Circle 40 on Reader Service Card

THE RED ARROW, A History of One of the Most Successful Suburban Transit Companies in the World, by Ronald DeGraw. This is a big, handsome book about one of the most unusual transportation enterprises that flourished in the United States during the late nineteenth and early twentieth centuries. It is enhanced by an excellent selection of well produced photographs.

The Philadelphia Suburban Transportation Company and its predecessors was a family enterprise that was commercially successful when acquired as a matter of public policy by the Southeastern Pennsylvania Transportation Authority (SEPTA) in 1970.

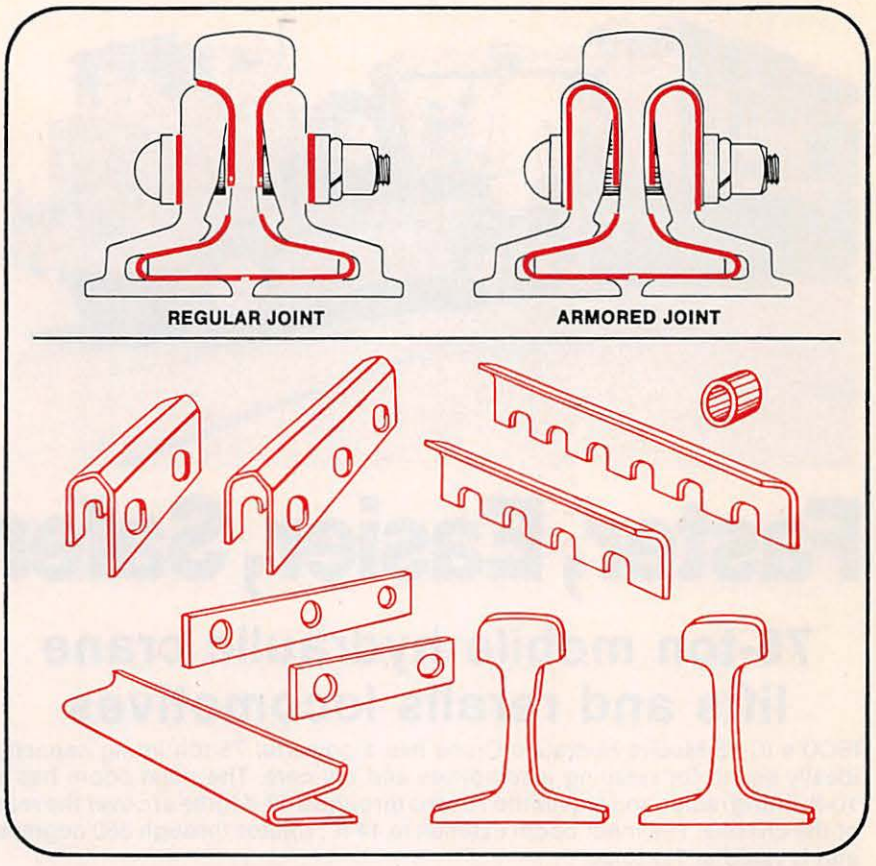
Three generations of the Taylor family headed the company commencing with A. Merritt Taylor, who gained control of a minor predecessor company in 1899. During the following 71 years Taylor and his son and grandson built and guided the destiny of the company until it was sold to SEPTA for $13.5 million on Jan. 29, 1970.

The Red Arrow Lines, the title adopted to identify the Taylor Companies, grew from a country trolley line in 1899 to the network of electric railway and bus lines radiating from the 69th Street Terminal of the Market Street Elevated Line in Upper Darby. Red Arrow passengers reached downtown Philadelphia via the elevated. From 69th Street the Red Arrow served the counties of Delaware and Montgomery. Between 1944 and 1948 Red Arrow acquired complete control of a high-speed electric railway running from 69th Street to Norristown, essentially completing the network acquired by SEPTA in 1970.

The Pennsylvania and Reading Railroads criss-crossed the two suburban counties with a network of electrified and non-electrified commuter lines originating in downtown Philadelphia. These lines not only paralleled each other but also many of the Red Arrow lines. For example, both the Pennsylvania and Reading operated electrified lines to Norristown, paralleled by Red Arrow's high speed line from 69th Street. Yet, until recent years each of the lines served a substantial share of the market and both the Reading and Red Arrow continue to serve this corridor in 1975.

One omission that may prove troublesome to the serious scholar is the lack of both a table of contents and index. However, this should not deter the reader from enjoying this book. It is a must for student and buff alike. Price: $25; 398 pages, plus a portfolio of rolling stock diagrams; Haverford Press, Inc., Box 93, Haverford, Pa. 19041.

—Seymour Kashin



Complete track insulation sets or bulk components...

ORDER THEM DIRECT FROM NVF

Precisely-fabricated Forbon® vulcanized fibre track insulation can now be purchased directly from NVF at manufacturer's prices. NVF, world's largest manufacturer of vulcanized fibre, has been making fibre track insulation for nearly 70 years and servicing you through leading railroad suppliers.

Vulcanized fibre is by far the most widely used material for track insulation because:

- Forbon provides the best combination of serviceability and cost of any material used for rail joint insulation.
- Forbon reduces renewal costs through simplicity of installation and lower material costs. Forbon insulation can be supplied in sets for complete joint replacement or as individual components to replace only those parts that are worn.
- Forbon is tough and lightweight. It is highly resistant to friction, high and low temperature extremes, oils and compression flow.
- NVF manufactures not only the parts, but the material itself, and exercises rigid quality control over every phase of the manufacturing and fabricating processes.

Since bushings and end posts are the points of maximum stress in a joint, NVF has developed special filament-wound steel bushings and reinforced nylon end posts which greatly extend the life of the insulated joint.

Your rail joints are most likely insulated with Forbon now. Keep them that way at the lowest possible cost. Contact J. H. Haley at NVF for immediate action and service.

NVF • NVF COMPANY
Railway Products Group
YORKLYN, DELAWARE 19736 • 302/239-5281

Circle 41 on Reader Service Card

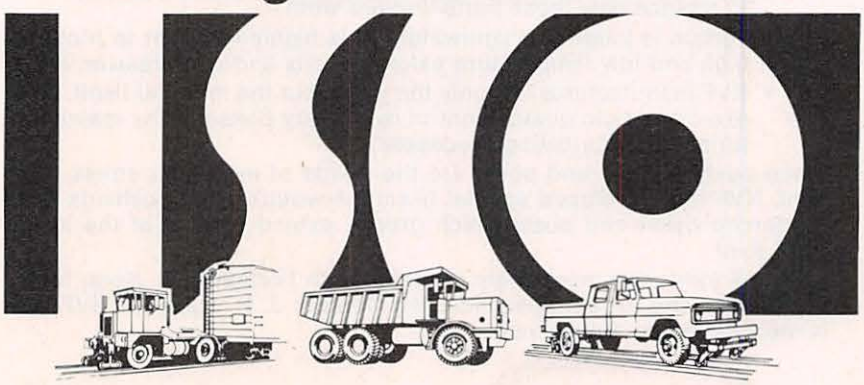
Faster, Easier, Safer

75-ton mobile hydraulic crane lifts and rerails locomotives

ISCO's IC-75 Mobile Hydraulic Crane has a powerful 75-ton lifting capacity ideally suited for rerailing locomotives and rail cars. The main boom has a 10-ft. lifting radius and moves the 75 tons through a 42-degree arc over the rear of the chassis. The inner boom extends to 14 ft., rotates through 360 degrees and is rated at 7½ tons.

Capable of traveling quickly over rail or road, the IC-75 MHC rerails locomotives or freight cars at a fraction of the cost of other methods. Its 75-ton lifting capacility and optional 100,000 pound rear winch make it a natural for untangling main line wrecks. Its hydraulically operated boom allows precise, controlled lifting and load movement without fear of boom failure or cable whiplash. And its low profile eliminates troublesome problems with overhead power lines or tunnel operations.

We've got the better one



ISCO MANUFACTURING COMPANY, INC.
A company of ISC Financial Corporation
13850 Wyandotte • P. O. Box 8620 Kansas City, Missouri 64114 • 816/942-6200

Circle 42 on Reader Service Card

75 YEARS AGO IN

(March 2 and March 9, 1900)

A strong movement is organizing to commit Congress to the enterprise of a deep waterway from Chicago to the gulf. Chicago, having without assistance completed a canal 30 miles long that ocean-going vessels might navigate, the cost of which will be $35,000,000, it is now urged that the United States might well expend the $25,000,000 which it is vaguely estimated would extend the canal to the Illinois River and give deep water in that now shallow stream and in the Mississippi river to its mouth. The idea of such a water route connecting the Great Lakes with the Gulf of Mexico appeals strongly to the imagination, and in the days when the sole hope of cheap transportation lay in the development of internal waterways, it would have had great practical value. But with the rivers paralleled by railways, which can convey all the traffic offered, the call to return to primitive methods of carrying does not seem to strike a responsive chord very far from the banks of the proposed waterway. The Chicago drainage canal is now fulfilling the important purpose for which it was constructed, and its current affords great industrial possibilities as a water power. It does not need to become a short section of a deep waterway, the cost of which would be enormous, to justify its existence.

***

On February 15 the Delaware Lackawanna & Western assumed complete charge of its dining car service. Two magnificant new dining cars will be in active operation, it is expected, by March 1. As rapidly as possible the cafe cars which have been in service will be transformed into fully equipped dining cars, giving equipment from which to serve three full meals a day on all through trains. Charges for meals on these cars will be on the a la carte plan, patrons paying only for what they order. In assuming the management of its dining car service the road completely refitted all its cars. Kitchens have been refurnished. New silver, new china, new crystal and new linen have been supplied throughout. The menu contains all possible essentials and all luxuries in season.

***

Representative Fitzgerald of Massachusetts has introduced a bill in Congress to limit sleeping car charges to 50 cents per hundred miles for a lower berth and 25 cents per hundred miles for an upper berth with a minimum total charge of $1.25 for a lower berth and $1 for an upper berth.

Market Outlook

CARLOADINGS

Loadings of revenue freight in the week ended Feb. 22, which included the Washington's Birthday holiday, totaled 430,123 cars, according to the Association of American Railroads. This was a decrease of 10,805 cars, or 2.5%, compared with the previous week, and a decrease of 86,076 cars, or 16.7%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Feb. 22 are estimated at 14.3 billion, a decrease of 14.6% below the corresponding week of 1974.

REVENUE FREIGHT CARLOADINGS

Commodity	Feb. 22 week	Feb. 15 week
Grain	22,202	24,607
Farm products	8,084	8,302
Metallic ores	22,856	23,691
Coal	88,861	90,171
Crushed stone, gravel & sand	19,329	18,645
Nonmetallic minerals	14,447	13,650
Grain mill products	18,690	19,987
Food and kindred products	19,849	20,448
Primary forest products	18,687	21,542
Lumber & wood products (except furniture	11,023	11,522
Pulp, paper & allied products	18,755	18,849
Chemicals & allied products	26,031	27,241
Petroleum products	7,011	7,868
Stone, clay & glass products	15,243	15,322
Coke	9,256	9,100
Metals & products	22,774	22,558
Motor vehicles & equipment	16,361	16,425
Waste & scrap materials	14,574	14,773
Forwarder & shipper assn. traffic	7,810	8,191
All other carloads	47,952	48,625
LCL traffic	328	400
Total cars loaded	**430,123**	**441,917**
Cumulative total, 8 weeks	1975	1974
	3,469,678	**4,018,253**
Estimated revenue ton-miles (billions) 8 weeks	115.7	130.1

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Feb. 15 totaled 22,656 cars (33.5% below the corresponding week last year and 2.1% below the preceding 1975 week) and 39,224 trailers or containers (down 34.2% from 1974 and 0.8% below the preceding week this year). Cumulative volume for the first seven weeks of 1975 is 151,789 cars (off 30.2% from last year) and 264,109 trailers or containers (down 30.0% from 1974).

IN CANADA

Canadian railway revenue freight loaded in the seven-day period ended Feb. 7 totaled 4.3 million tons (up 16.9% from 1974). Cars loaded increased 6.4% to 73,072. Cumulative loadings for 1975 were up to 21.995 million tons (up 6.4% from 1974).

● *Amtrak.*—Will place orders valued at $245 million for 200 additional Metroliner-type coaches and 235 new-design bi-level cars. Early in March announcement of the contracts—expected to go to Budd and Pullman-Standard, respectively—was being held up while the Amtrak board reexamined sleeping-car designs.

● *CP Rail.*—Will construct a $6-million, 100,000-sq-ft semi-automated freight-car repair facility at its Angus Shops in Montreal. The new shop, due to become operational in 1977, will have a maximum annual capacity of 2,700 freight-car repairs. Identical to a facility built in 1973 at CP Rail's Ogden Shops in Calgary, the new shop will have five indoor repair tracks, with a steel fabricating shop between the first and second track pairs, and a fifth track devoted solely to truck repairs. Construction of a $2.5-million traction motor and generator shop at Angus, announced last year, is due to be completed later this year.

● *Freight-car orders and deliveries.*—The following report has been received from the ARCI and the AAR:

DELIVERED

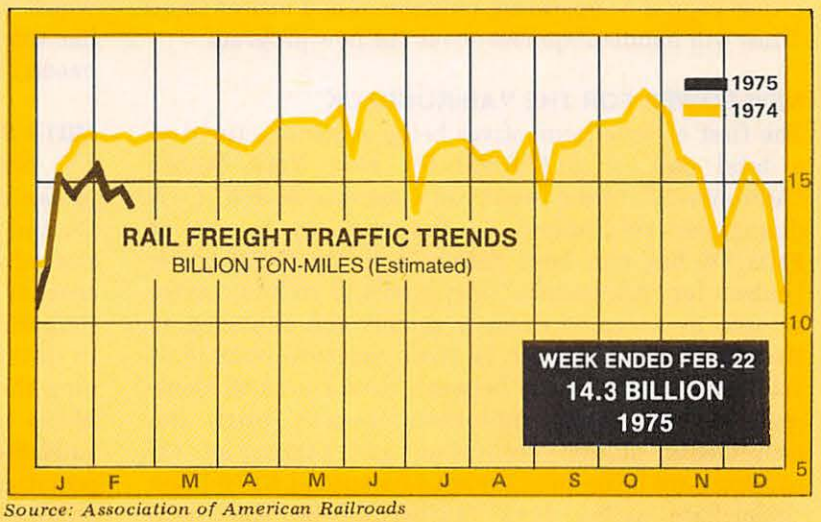
	Jan. '75	Dec. '74	Jan. '74
Built new by carbuilders	5,736	5,749	5,701
Built new in R.R. shops	174	413	161
Built new—total	5,910	6,162	5,862
Rebuilt	18	113	59
TOTAL DELIVERED	**5,928**	**6,275**	**5,921**

ORDERED

To be built new by carbuilders	3,502	9,189	8,921
To be built new in R.R. shops	0	150	2,325
To be built new—total	3,502	9,339	11,246
To be rebuilt	10	100	-125
TOTAL ORDERED	**3,512**	**9,439**	**11,121**

ON ORDER AND UNDELIVERED

	Feb. 1 '75	Jan. 1 '75	Feb. 1, '74
To be built new by carbuilders	75,910	79,009	68,689
To be built new in R.R. shops	11,003	11,207	3,933
To be built new—total	86,943	90,216	72,622
To be rebuilt	652	660	582
TOTAL ON ORDER	**87,595**	**90,876**	**73,204**



Source: Association of American Railroads

Moving People

FOR ATLANTA: $80 MILLION, AND A PROMISE

About a year ago, then-DOT Secretary Claude Brinegar was telling cities around the nation that if they wanted to build costly fixed-guideway transit systems, they had better be prepared to pick up most of the tab themselves. Atlanta, which had decided to build a 60.9-mile rail rapid system on the basis of substantial Federal funding, became worried—and said so, loudly and publicly. Now. Atlanta is feeling somewhat more optimistic. On Feb. 19, Frank C. Herringer, head of the Urban Mass Transportation Administration, showed up for the Metropolitan Atlanta Rapid Transit Authority's official ground-breaking. He announced a new Federal grant of $80 million to MARTA (bringing Federal participation to date to $199.9 million), and promised that there would be a "commitment sufficient to ensure that rail transit will be operating in Atlanta before the end of the decade." MARTA officials are still concerned that they will run into funding problems; Herringer is still a long way from saying that any city will get the full 80% in Federal funds permitted (though not required) by law. But while far from resolved, the problem of paying for the Atlanta system, now price-tagged at $2.1 billion, looks a little easier than it did 12 months ago.

UMTA SETS UP OPERATING-AID UNIT

A special task force headed by Stephen C. McConahey, director of UMTA's Office of Transit Management, has been established to implement provisions of the National Mass Transit Assistance Act of 1974, which for the first time makes Federal funds available for transit operating subsidies. In addition to money earmarked for capital improvements only, the Act provides $4 billion over six years which can be used for either capital or operating purposes. Field offices in 10 cities will handle inquiries about the new program.

NEW POWER FOR THE "ADIRONDACK"

The first of four locomotives being remanufactured at a total cost of $1,056,000 for New York State's "Adirondack" trains went into service March 1. A dining car refurbished by the state at a cost of $105,000 has also been delivered to the Delaware & Hudson for "Adirondack" duty, and will go into service as soon as a second diner is rebuilt and delivered so that similar facilities can be made available on each of the trains running daily between New York and Montreal. Rolling stock improvements—plus track improvements, station renovation and parking-lot expansion—are being paid for out of a special $30-million "immediate action fund" authorized by the State Legislature last year. This money is in addition to the $250 million which will be made available under a Rail Preservation Bond Act which voters approved last November. The "Adirondack" is a 403-b train whose losses are shared by the state and Amtrak (RA, Feb. 10, p. 26).

WMATA PRODUCES TUNNELING FILM

Construction of twin earth tunnels beneath Lafayette Park in front of the White House is the subject of a 10-minute color motion picture now available on loan from the Washington Metropolitan Area Transit Authority. WMATA says the film "touches upon early mining techniques and relates them to a contemporary steel 21-ft earth tunneling shield, weighing 85 tons, which was guided by laser beams on its mission of tunneling a curve under Lafayette Park to link the G Street and Connecticut Avenue sections of Metro subway." Inquiries should be directed to the Office of Community Services, WMATA, 600 Fifth St., N.W., Washington, D.C. 20001.

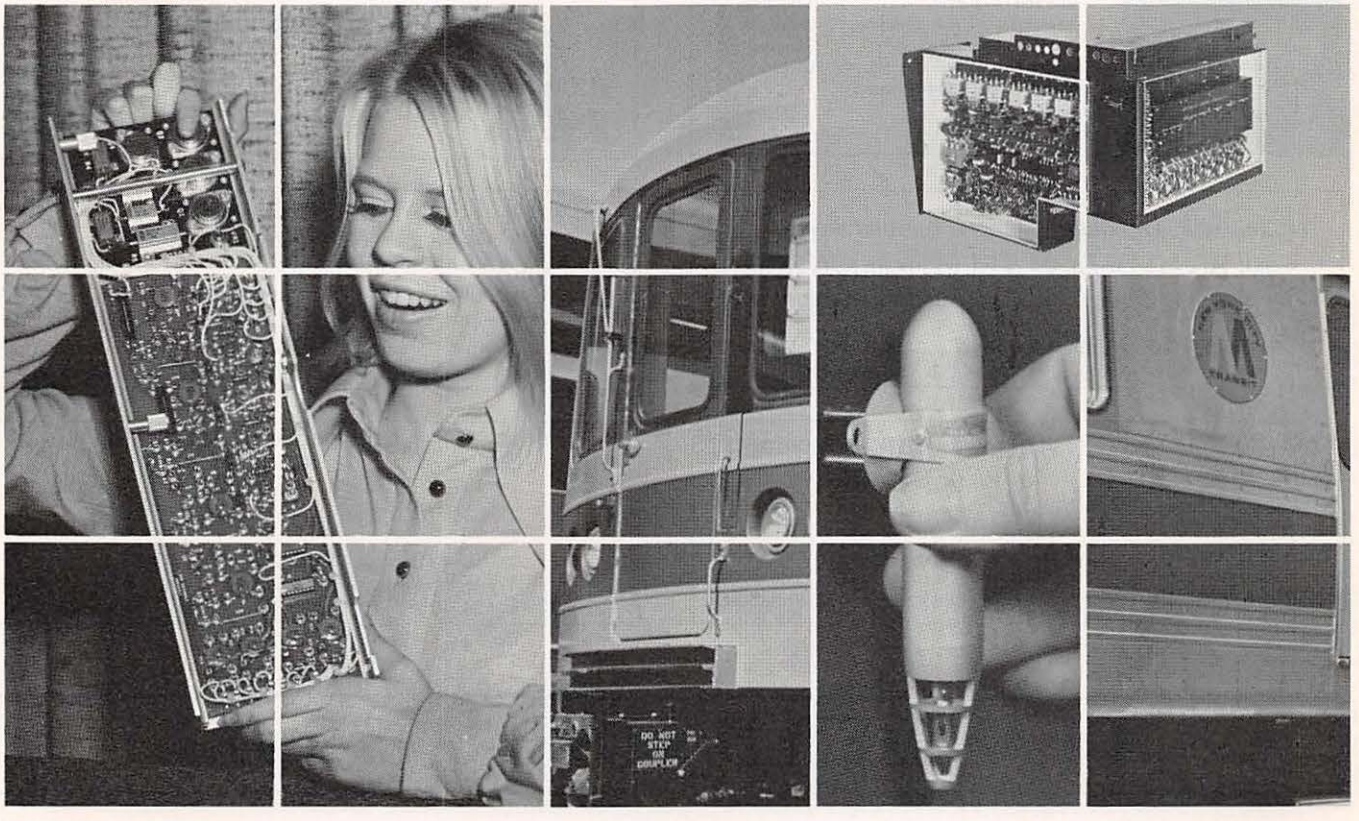
SCRTD CREATES RAIL SECTION

Proponents of a rail rapid system for the Los Angeles area may be momentarily down—following the defeat of a rapid transit proposal at the polls last November—but don't count them out. Late in February, the Southern California Rapid Transit District announced the establishment of a new Rapid Transit/Commuter Rail Department. A relatively long-term goal will be the construction of one or more "starter routes" of a fixed-guideway system that SCRTD likes (RA, June 10, 1974, p. 30) but the voters, so far, don't. A more immediate objective will be the start-up of rail commuter service between Los Angeles and Davis with eight cars which the Los Angeles County Board of Supervisors has voted to acquire. SCRTD's new department will be headed by Chief Engineer Richard Gallagher.

MBTA SEEKS TO UPGRADE PC SERVICE

The Massachusetts Bay Transportation Authority is proposing a $13.6-million program to improve Penn Central commuter service. MBTA wants to purchase and rehabilitate five PC locomotives, 20 stainless steel coaches and seven Budd rail diesel cars; upgrade the Franklin Branch right-of-way, and make improvements to stations and parking lots. In addition MBTA is planning the purchase of two-way radios for the Boston & Maine trains it subsidizes, principally as a deterrent to vandalism. MBTA will ask the Urban Mass Transportation Administration to pay for 80% of the program.

If you have to make environmental control decisions, don't lose your 'cool' (or your heat) go with experience, go for economy, go for dependability, go for proved in service, off the shelf components, customized to meet your specifications. Go for total control system capability—Go for Vapor.



If you have to specify environmental control for rapid transit cars, go the way MTA has gone. Go Vapor.

Recent MTA and other new rail passenger cars where Vapor total environmental control systems have been specified include: NYCTA-1,841, LIRR-772, Hudson Harlem-178, Metroliner-128, New Haven-244, Jersey Arrows-35, PATCO-75, MBTA-328, CTS-30, IC-130, CTA-150, BART-450, SFMR-80, Milwaukee Road-41. This totals 4,482 car sets.

And that's what we mean when we say "go with experience." Actual on the car, in-service experience.

We have the capability to design, develop and manufacture electronic, electro-mechanical and pneumatic products to meet the high standard of reliability and performance demanded by today's transportation systems.

Rail system passenger cars where Vapor electric Slim-Line door operators have been specified—LIRR-788, BART-450, NYCTA-1,252, Staten Island-52, PATH-46, Turbo-Train-4, WMATA-300, Hudson Harlem-172, ELW-155, New Haven-244 and Metroliner-57. This totals 3,520 car sets.

Vapor systems are backed by our nation-wide, dependable, where and when you need them technical service group.

So keep your "cool" (and your heat) in the hands of the experienced. Go to the environmental control experts at Vapor.

How to go. Contact Vapor Corporation, Transportation Systems Division, 6420 West Howard Street, Chicago, Illinois 60648. In Canada, Vapor Canada Limited.

VAPOR CORPORATION

MORE THAN 50 YEARS IN THE TRANSPORTATION FIELD

DISCOVERING BETTER WAYS TO MEET TOMORROW'S TRANSPORTATION NEEDS

Circle 43 on Reader Service Card

. . . PROFESSIONAL DIRECTORY . . .

DCO The De Leuw, Cather Organization CONSULTING ENGINEERS
165 W. WACKER DRIVE • CHICAGO 60601

SUBWAYS • RAILROADS • PUBLIC TRANSIT • TRAFFIC • PARKING • HIGHWAYS • BRIDGES
PORT DEVELOPMENT • AIRPORTS • COMMUNITY PLANNING • URBAN RENEWAL
MUNICIPAL WORKS • INDUSTRIAL BUILDINGS • ENVIRONMENTAL POLLUTION CONTROL

ATLANTA • BOSTON • BUFFALO • NEWARK • NEW YORK • OKLAHOMA CITY • PHILADELPHIA
SAN FRANCISCO • SEATTLE • WASHINGTON, D.C. • BANGKOK • BEIRUT • SYDNEY

HARRY F. ORTLIP COMPANY
ELECTRICAL ENGINEERS AND CONSTRUCTORS
FOR THE
RAILROAD INDUSTRY
Forty Years Experience In Electrical Installations,
Including Catenary and Power Systems.
50 N. 18th St., Phila., Pa. 19103 215-LO-4-4800

Railroads • Rapid Transit • Electric Traction Power •
Signals and Train Control • Communications • Substations •
Power Generation • Urban Planning • Environmental Protection

Gibbs & Hill, Inc.

ENGINEERS DESIGNERS CONSTRUCTORS
393 Seventh Avenue, New York, NY 1001
A Subsidiary of Dravo Corporation

PARSONS BRINCKERHOFF QUADE DOUGLAS

Engineers
Designers Planners
Evaluations & Operations Studies
Bridges • Terminals
Rapid Transit Systems
ONE PENN PLAZA, NEW YORK, NY 10001
Atlanta, Boston, Denver, San Francisco, Trenton, Washington, DC

HNTB
HOWARD NEEDLES TAMMEN & BERGENDOFF

Feasibility studies and design services for

Bus and rail transit	Terminals
Regional and urban planning	Parking
Soils and foundations	Tunnels
Structures	Utilities
Environmental impact studies	

Offices in 29 cities 215 525-7170
551 West Lancaster Avenue, Haverford, Pa. 19041

TRANSPORTATION CONSULTANTS
STONE & WEBSTER
Management Consultants, Inc.
90 Broad St. New York, N.Y. 10004
212-269-4224

IECO *engineering for the railroad world*
RAILROAD DESIGN & ELECTRIFICATION
Planning • Design • Construction Management

INTERNATIONAL ENGINEERING COMPANY, INC.
220 MONTGOMERY STREET, SAN FRANCISCO, CALIFORNIA 94104

URBAN ENGINEERS, INC.
Consultants • Planning and Design
Rapid Transit • Airports • Railroads • Bridges • Highways
Structures • Roadway • Terminal • Station Facilities
Environmental Impact Studies • Construction Management
19th & Delancey, Philadelphia, Pa. 19103
Baltimore • Buffalo • Erie • Camden • Washington, DC

MCA ENGINEERING CORPORATION RAIL • RAPID TRANSIT

PLANNING DESIGN ENGINEERING

600 N. JACKSON STREET MEDIA, PA 19063 (215) 565-1411

TRANSPORTATION STUDIES AND REPORTS
• *Rapid Transit* • *Maintenance*
• *Railroad* • *Mergers*
• *Transit Bus* • *Acquisitions*
• *Operations* • *Valuations*

URS COVERDALE & COLPITTS, INC.
Transportation and Industrial Consultants
150 East 42nd St., New York 10017 (212) 953-8600

CLASSIFIED ADVERTISING

WANTED TO BUY:

One E.M.D. Model SW9 1000 or 1200 H.P. Diesel Switcher Locomotive in Good Condition.

P.J. Marshall
Manager, Purchases & Stores
Pittsburg & Shawmut Railroad Company
Brookville, Pa. 15825
Phone: 814-849-5351

WANT MORE ST. LOUIS AREA SALES?

1. **For Product Availability:** Our centrally located warehouse with rail and truck docks.
2. **For Product Exposure:** Our combined fifty years of railroad sales experience.

For details on either or both: **Write Box 255, Railway Age,** 350 Broadway, New York, New York 10013

TRANSPORTATION CONSULTANTS

PUBLIC TRANSIT	RAILROADS	TRUCKING	INDUSTRIAL
•Operations	•Acquisitions and Mergers		•Planning
•Valuations	•Reorganizations		•Financial

WYER, DICK & CO.
(A Subsidiary of Edwards and Kelcey, Inc.)
New York, Boston, Minneapolis, Philadelphia, Sao Paulo, Madrid, London
Central Office: 8 Park Place, Newark, N.J. (201) 621-7050

R. R. TRACK MATERIAL
Rail-Frogs-Points-Spikes-Bolts-Anchors-Steel
Ties-Anything for trackwork needs.
RELAY OR NEW
LEFTON IRON & METAL CO.
Phone: 314-241-7100
P.O. Drawer 151-205 S. 17th St., E. St. Louis, Ill. 62202

REMSA MEMBER

RAILWAY AGE
ADVERTISING
SALES DEPARTMENT

Chicago, ILL. 60602
29 E. Madison St.
(312) 641-5815
Reid Kenedy—vice president—sales
Glen A. Schlueter
regional sales manager

New York, N.Y. 10013
350 Broadway
(212) 966-7700
W. Arthur Cubbage
regional
sales manager

Pittsburgh, Pa. 15237
1514 Northway Mall
(412) 366-0100
Ronald M. Giallonardo
regional
sales manager

Dallas, Tex. 75206
Noel Page Building
6400 N. Central Expressway
(214) 361-6972
Joseph Sanders

Los Angeles, Cal. 90025
11704 Wilshire Blvd.
(213) 477-4004
Fred Klaner, Jr.
Philip O. Bowers

Ormond Beach, Fla. 32074
750 Lindenwood Circle, East
(904) 672-6031
C. James Fisher
regional sales manager

Sausalito, Cal. 94965
3030 Bridgeway Building
(415) 332-1481
(415) 332-1482
Lewis A. Vogler

London S.W. 1Y6, England
01-839 6318
67/68 Jermyn St., St. James's
Kenneth J. Hendry
B.A. Leckie

Manchester M225RQ, England
Haletop
Wythenshawe Civic Center
Ian Goulden
John M. Spence

Paris, 8e, France
70 Rue de Ponthieu
Stephen Brown-Joussard
Francois Nadaud

4 Dusseldorf-Nord
Eitelstrasse 32
E. Hillerbrand
Ronald Fischer
G. Schneider
H.F. Olias du Bosque

Tokyo, Japan
Sun Gain Shia, Ltd.
Shiba Nikkatsu Bldg.
13, Shiba Park
Minato-Ku
C.H. Yiu, Managing Director

CLASSIFIED ADVERTISING

FOR SALE

NEW Orton Diesel Locomotive Cranes 25-T & 50-T Capy. for either 36", 39-3/8" or 42" Gauge. Especially adaptable for steel mills. Specs on request

Striegel Supply & Equipment Corp.
6001 Chemical Road, Baltimore, Md 21226 Tel 355-7922, 7923

TIMETABLE RACKS

Authentic Reproductions, hand-crafted from solid oak, natural finish. 24 pockets, $110; 35 pockets $150, plus shipping. **Railway Age Box 207, 350 Broadway, New York, N.Y. 10013.**

FOR SALE

RAILROAD TRACK MATERIAL

RAILS 12# to 136#

COMPLETE SWITCHES-FROGS-POINTS, ANCHORS, BOLTS, SPIKES, LOCKWASHERS, GAUGE RODS, CROSS TIES, SWITCH TIES, BRIDGE TIMBERS

We have a complete line of any track work materials you might need, available in either NEW or RELAY, located nearby in one of our major inventory locations.

PHONE

A & K Railroad Materials, Inc.

801 773-3236
Post Office Box 1276
Freeport Center
Clearfield, Utah 84016

913 375-1810
Post Office Box 6266
Kansas City, Kansas 66106

415 655-3272
3438 Helen Street
Oakland, California 94608

DISMANTLING LOCOMOTIVES
4-ARS 3, and 3-F7S

Trucks, engines, Compressors, Generators available-
JOSEPH SIMON & SONS, INC.—2202 East River Street
Tacoma, Wash. 98421 Area Code 206 272-5112

DIRECTOR OF PERSONNEL

Medium-size midwestern Class I carrier seeks individual with railroading exposure to take charge of Personnel Department. Degree and Personnel experience helpful but not essential. Applicants must exhibit capacity for personal initiative and aptitude for implementing programs and policies. Salary to be commensurate with experience and abilities.

Send resume with background and present salary to:

Box 258
Railway Age
350 Broadway
New York, N.Y. 10013

An equal opportunity employer

Advertisers Index

ACF Industries, Inc. 19, 65
Abex Corporation 62-63
Allied Chemical Corporation 43
American Steel Foundries . . . . . IFC
Automation Industries, Inc. 71
Bay Area Rapid Transit District 26
Bethlehem Steel Corporation 11
The Budd Company 54-55
Buffalo Brake Beam Co. 47
C F & I Steel Corporation 35
Ciba-Geigy Corporation 30-31
Difco, Inc. 17
Dresser Transportation Equipment Co. 57
E. I. DuPont Company 9
Electro-Motive Division 44-45
Ellcon-National, Inc. 6
L.B. Foster Co. 64
General Railway Signal Co. 18
Gustin-Bacon Division 36
Harbour Industries, Inc. 58
Heil Process Equipment Co. 26
Hoesch America, Inc. 75
Illinois Central Gulf RR 26
Isco Manufacturing Company 78
Jackson Corporation 50-51
Jane's U.S.A. 76
The Kerite Company . . . . . IBC
Knorr-Brake Corp. 27
Loram Construction 72
New York Air Brake Co. 38-39
NVF Company 77
The Ohio Brass Company 4
Pandrol Limited 69
Albert Pick Hotels & Motor Inns 70
Portec, Inc. 3
H.K. Porter 73
Pullman, Inc. 24-25
The Rails Co. 58
Railway Maintenance Corp. 47
Rexnord-Railway Equipment Division 14-15
Safety Electrical Equipment Corp. . . . . BC
Schaefer Equipment Company 68
Servo Corporation of America 12-13
Simmons-Boardman Pub. Corp. 70
Skil Corporation 59
Tamper 61
Telautograph Corporation 74
Townsend/TRS Div. 58
Vapor Corporation 81
Virginia Suppliers, Inc. 70
Westinghouse Air Brake Co. 48-49

Viewpoint

"Take 'em over and run 'em right" . . .into what?

The proposition that U.S. railroads could be more efficiently, and perhaps more profitably, operated by the Federal government than by private owners is not a new one. It was a subject of lively debate in the pages of this magazine 80-odd years ago, when 30,000 miles of the system were in bankruptcy and politicians right, left and center were forecasting its imminent collapse. Fifty years ago the railroads, having survived a brief trauma of government operation during World War I (which cost the taxpayers $2 million a day), were again on the brink, and Henry Ford, the transportation expert, led a spirited new fight for government ownership.

Now the debate is heating up again, and its intellectual tone appears to have been set by Congressman Toby Moffett, a freshman Democrat from Connecticut, who recently observed, "I don't believe there is anything sinister in the word 'nationalization.' In my district I hear lots of people say, 'Take 'em over and run 'em right.' "

The Moffett quote appeared in an article in The New York Times, signed by A.H. Raskin, assistant editor of that newspaper's editorial page. Mr. Raskin himself somewhat wistfully observed, "In most of the rest of the world, nationalized railroads are an old story, but that has not prevented a high degree of service innovation, especially in passenger movements."

Congressman Moffett's discontent with the prospect of continued private operation of the railroads stems from the possible abandonment of 6,200 miles of lightly-patronized freight lines in the Northeast and Midwest as suggested in the reorganization plan devised by the United States Railway Association. He appears to believe that if the government were in charge, no such surgery would be necessary. Mr. Raskin's own feeling that nationalization might not be such a bad idea, after all, appears to derive from his admiration for those fine passenger trains in Europe.

Our suggestion to Mr. Moffett is that he examine the experience of Britain, which nationalized its railways nearly 30 years ago—and which has since then undertaken wholesale abandonments of line in a desperate and losing battle to control soaring losses (now well over half a billion dollars a year for a system that is half the size of the Northeast bankrupts).

To Mr. Raskin, we suggest that the next time he rides one of those splendid trains in France or Germany, he take the time to look out of the window and examine one of Europe's rather less splendid freight trains (if he can find one: there aren't that many). What he sees may help to explain to him why European railroads generally carry less than one-fifth of all available freight tonnage (vs the 40% of the U.S. total which our own railways carry with a degree of efficiency that makes them a model for the rest of the world).

AND SPEAKING OF MONEY. . .

As the good economist we know him to be, Mr. Raskin might also take a more than passing interest in the profit-and-loss statements of, for example, the German Federal and the French National Railroads. At last reports, both of these systems were operating at losses approaching $2 billion a year.

Nationalization? It may come to that. But if we take that road, we do not have to take it blindfolded.

Before Mr. Moffett and friends take 'em over and run 'em right into the Federal treasury—and, worse perhaps, the Federal bureaucracy—it might be a good idea if they took the trouble to find out how nationalization works in fact, not theory.

RAILWAY AGE

READER SERVICE CARD

This card usable for 90 days from date of issue.

FREE: More information on: products and equipment in

Advertisements
New Products Report
New Literature Section

Just circle numbers on attached postage-paid card, matching those under the ads, new products or literature that interest you.

Print your name, title, company name and address. (Readers outside the U.S., please affix correct postage).

Please fill in classification at bottom of card.

Put in the mail—we'll do the rest. Express Service processing will speed your inquiry to the proper firm.

—the editors

Name _____ Title _____

Railroad or Firm _____

Street _____

City _____ State _____ Zip _____

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27
28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54
55	56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81
82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99
100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117
118	119	120	121	122	123	124	125	126
127	128	129	130	131	132	133	134	135

CLASSIFICATION INFORMATION
Please circle letters on data which apply to you.

FUNCTION
- **A** Executive
- **B** Operations
- **C** Purchasing
- **D** Mechanical
- **E** Engineering
- **F** Sig. & Comm.
- **G** Traffic Mgt.

BUYING INFLUENCE
- **H** Recommend
- **I** Specify
- **J** Approve
- **K** None

RAILWAY AGE **March 10, 1975**

Enter my subscription to **RAILWAY AGE**

☐ 1 yr. $8.00

☐ 2 yrs. $12.00

Above rates apply for railroad, rail rapid transit and freight traffic employees.

All others

☐ 1 yr. $17.00

RAILWAY AGE

READER SERVICE CARD

See other side of this card for FREE additional information on products and equipment in the issue's

Advertisements

New Products Report

New Literature Section

Use the postage-paid reply card to obtain further details on products that interest you.

—the editors

BUSINESS REPLY MAIL

NO POSTAGE STAMP REQUIRED IF MAILED IN THE U.S.A.

Postage will be paid by:

Railway Age
P.O. Box 530
Bristol, Conn. 06010

Reader Service Dept.

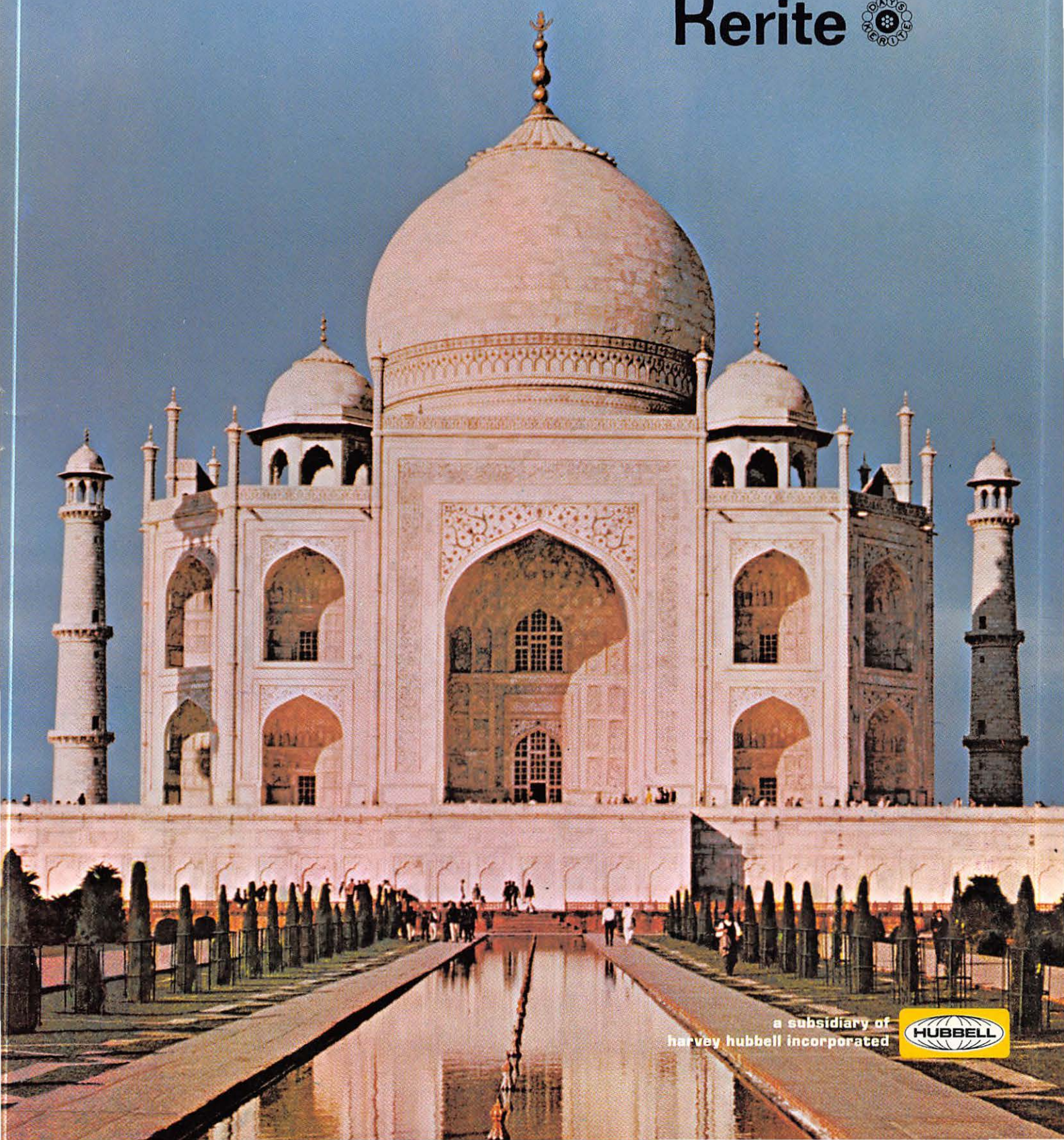
First Class
Permit No. 153
New York, N.Y.

Painstaking craftsmanship combined with classic design and the finest quality materials makes timeless creations of enduring excellence. Kerite's continuing traditions of excellence in manufacturing the finest available insulated electrical cable are as strong today as a century ago, when our name was still new. Specify Kerite... the cable that lasts...and lasts...and lasts...

MEMBER RPI

The Kerite Company • Principal Offices: Boston; Chicago; New York; Philadelphia; San Francisco; and Seymour, Conn.
Sales Representation throughout the United States

Kerite



a subsidiary of
harvey hubbell incorporated
HUBBELL

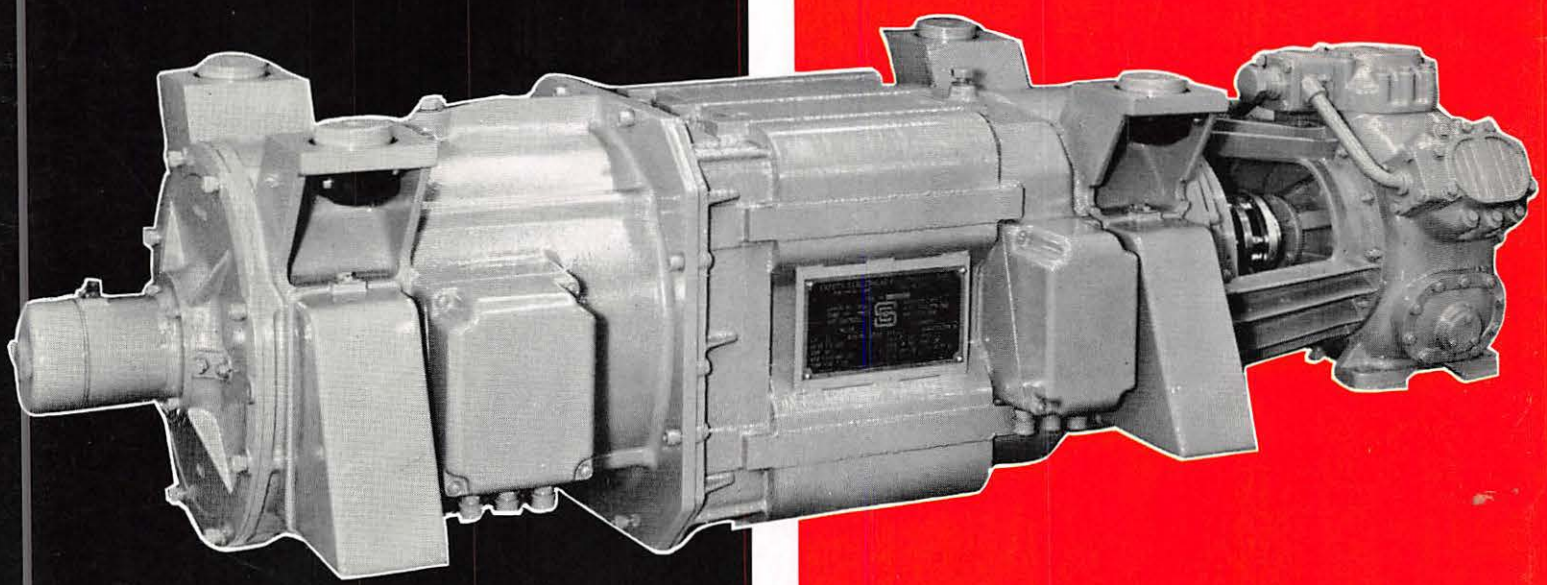
Safety

AUXILIARY POWER SYSTEMS

Ground Transportation Specialists

Plan and depend on "Safety" Auxiliary Power Systems — choose from motor alternators, motor generators, battery chargers, genemotors or caboose generators — all supplied with essential precision controls. Insure efficient and dependable operation — use "Safety" — the specialists in railroad power generation and regulation systems.

Write us for details on Systems with input voltages of 15 volts to 1,000 volts D.C.



SAFETY ELECTRICAL EQUIPMENT CORP.

1187 DIXWELL AVE., NEW HAVEN, CONN. 06514

Tel: (203) 865-2171 Telex: 963454

NEW YORK • CHICAGO • PHILADELPHIA • SAN FRANCISCO • NEW HAVEN • MONTREAL

"Safety" Products include: Air Conditioning Equipment • Genemotors • Generators • Fans • Regulators • Blower Units • Motors • Motor Generators • Motor Alternators • Transportation Gearing • Static and Electromechanical Control Equipment.

Circle 2 on Reader Service Card